

US EPA ARCHIVE DOCUMENT

REPORT OF THE SECRETARY OF NATURAL RESOURCES

**FY 2013 CHESAPEAKE BAY AND
VIRGINIA WATERS CLEAN-UP PLAN**

**TO THE GOVERNOR AND THE CHAIRMEN OF THE
SENATE AGRICULTURE, CONSERVATION AND NATURAL
RESOURCES COMMITTEE AND THE HOUSE
AGRICULTURE, CHESAPEAKE AND NATURAL
RESOURCES COMMITTEE**

**COMMONWEALTH OF VIRGINIA
RICHMOND
November 2013**

FY 2013 CHESAPEAKE BAY AND VIRGINIA WATERS CLEAN-UP PLAN

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Executive Summary

This report was developed to comply with consolidated water quality reporting requirements set forth in § 62.1-44.118 of the *Code of Virginia*. This section requires the Secretary of Natural Resources to submit a progress report on implementing the impaired waters clean-up plan as described in § 62.144.117 of the *Code of Virginia*. This consolidated report also includes the “*Annual Report on the Water Quality Improvement Fund*” by the Department of Conservation and Recreation (DCR) and Department of Environmental Quality (DEQ) pursuant to §10.1-2134 of the *Code of Virginia* and incorporates the “*Cooperative Nonpoint Source Pollution Programs*” in subsection D of § 10.1-2127 of the *Code of Virginia*. The report also encompasses the Department of Conservation and Recreation’s report of “*Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices*” pursuant to subsection C of §10.1-2128.1 of the *Code of Virginia*. Collectively, this report also satisfies reporting requirements in § 2.2-220.1 of the *Code of Virginia* regarding the Chesapeake Bay 2000 Agreement.

Water Quality Improvement Fund and Cooperative Nonpoint Source Pollution Programs

During FY 2013, DCR allocated over \$25.2 million in cost-share funds to Soil and Water Conservation Districts. Additionally almost \$400,000 in Conservation Reserve Enhancement Program (CREP) cost-share funds were disbursed to Districts. Of this amount, approximately \$17.8 million was distributed to farmers as cost-share for implementation of best management practices (BMPs). The funding for FY13 was generated from recordation fees on land transfers and balances in the Virginia Natural Resources Commitment Fund (VNRCF). Practices installed on farms during FY13 will result in estimated edge of field nitrogen reductions of approximately 6.4 million pounds, phosphorus reductions of approximately 1,576,339 pounds and sediment reductions of approximately 1,191,295 tons. In addition during FY13 DCR allocated, awarded or solicited proposals for \$2.2 million in grants related to Strategic Water Quality Initiatives and Cooperative Nonpoint Source Agreements with Local Governments. DEQ currently has 57 signed Water Quality Improvement Fund (WQIF) agreements which obligated \$647 million in state grants ranging from 35% to 90% cost-share, for design and installation of nutrient reduction technology at Bay watershed point source discharges.

Funding Needs for Effective Implementation of Agricultural Best Management Practices

Funding projections for the Chesapeake Bay were developed in coordination with stakeholders based on a detailed analysis of practices in the Chesapeake Bay Phase II Watershed Implementation Plan (WIP). The Southern Rivers needs projections were based on the funding split prescribed in the VNRCF. The implementation schedule focuses on full implementation by 2025, recognizing the need to significantly expand program capacity by 2017 to demonstrate the Commonwealth’s commitment to reducing agricultural loads. For the fiscal years 2015 – 2020, an estimate of \$1.316 billion may be required from state and federal funds as well as farmer financial contributions to meet statewide water quality goals by 2025. Approximately 50 percent of this total could be needed from State sources, the vast majority of which is direct funding of the Virginia Agricultural Cost-Share Program.

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Projected funding needs from state sources for implementation of agricultural best management practices (BMPs) for the FY15-FY16 biennium are estimated to be \$125.1 million with the following breakdown:

FY 2015

- Cost-Share program funding (50323) - \$30.1 million
- District Technical Assistance (50322) - \$10.4 million
- District Financial Assistance (50320) - \$9.6 million
- Program Support (50301) – \$2.1 million

FY 2016

- Cost-Share program funding (50323) - \$50.7 million
- District Technical Assistance (50322) - \$10.8 million
- District Financial Assistance (50320) - \$9.5 million
- Program Support (50301) - \$2.1 million

This funding schedule will not achieve 60% of the Chesapeake Bay agricultural implementation by 2017 as was indicated in Table 5.4-4 of Virginia’s Phase I WIP. However, it is anticipated that the Commonwealth’s 2017 Bay goal would still be met by over-achievement in other sectors, specifically wastewater treatment plants, and adaptive management. Improved tracking of voluntarily installed practices, technological improvements in practices, program efficiency, other cost reduction strategies and changes to improve the Bay Model are difficult to quantify, but all are expected to reduce overall costs and close this 2017 gap. Further, it seems unlikely that the federal funding needed to support a broad expansion of implementation effort will be available in the near term.

Based on these factors and the fiscal realities of the Commonwealth, DCR recommends District funding levels for 2015 of \$41.0 million. This funding includes surplus funds and recordation fees deposited in the VNRCF and general funds. The recommended funding breakdown includes:

- Cost-Share program funding (50323) - \$29.7 million
- District Technical Assistance (50322) - \$3.0 million
- District Financial Assistance (50320) - \$8.3 million

Chesapeake Bay and Virginia Waters Clean-Up Plan Report

During FY13, many strategies were implemented to reduce pollutants entering the Chesapeake Bay tributaries and Southern Rivers basins. Significant progress was made in reducing point source discharges from sewage treatment plants, installing agricultural best management practices, reducing the phosphorus content of poultry litter through effective dietary management of poultry, enhanced compliance with state erosion and sediment control regulations, and the adoption of revised Stormwater Management Regulations. The implementation of Virginia’s Phase II Watershed Implementation Plan continues as well as the specific actions proposed in the 2012-2013 implementation “milestones.”

Chapter 1 - Annual Report on Water Quality Improvement Fund Grants

The purpose of the Virginia Water Quality Improvement Act of 1997 (Act) is “to restore and improve the quality of state waters and to protect them from impairment and destruction for the benefit of current and future citizens of the Commonwealth” (§10.1-2118 of the Code of Virginia). The Act was amended in 2005 and 2008. The Water Quality Improvement Fund’s (WQIF) purpose is “to provide Water Quality Improvement Grants to local governments, soil and water conservation districts, institutions of higher education and individuals for point and nonpoint source pollution prevention, reduction and control programs” (§10.1-2128.B. of the Code of Virginia). In 2008, the General Assembly created a sub-fund of the WQIF called the Virginia Natural Resources Commitment Fund (VNRCF, §10.1-2128.1) that is to be used for agricultural best management practices and associated technical assistance.

The two major state agencies responsible for administering the WQIF are the Department of Environmental Quality and the Department of Conservation and Recreation. DEQ has the responsibility to provide technical and financial assistance to local governments, institutions of higher education, and individuals for the control of point source pollution. During the reporting period DCR had the responsibility to provide technical and financial assistance to local governments, soil and water conservation districts, institutions of higher education, and individuals for nonpoint source pollution prevention, reduction, and control programs. Because of the nature of nonpoint source pollution controls, DCR sought the assistance and support of other state agencies to provide the necessary expertise and resources to properly implement the nonpoint source elements of the Act. During its 2013 Legislative Session, the General Assembly passed Chapters 756 (HB2048) and 793 (SB1279) of the 2013 Virginia Acts of Assembly which designated, effective July 1, 2013, the Virginia Department of Environmental Quality as the lead for nonpoint source programs in the Commonwealth of Virginia. During FY13 DCR and DEQ jointly worked on nonpoint source water quality initiatives that would occur in FY13 and in future years.

This report fulfills the Department of Conservation and Recreation’s and the Department of Environmental Quality’s legislative requirement under § 10.1– 2134 of the *Virginia Water Quality Improvement Act of 1997* (WQIA). Additionally, Chapter 21.1 of Title 10.1 of the *Code of Virginia* requires that an annual report be submitted to the Governor and the General Assembly specifying the amounts and recipients of grants made from the Water Quality Improvement Fund and pollution reduction achievements from these grants. WQIF grants awarded are provided along with available data on pollutant reductions achieved and estimated pollutant reductions to be achieved from recently funded grant projects.

WQIF & VNRCF Nonpoint Source Programs

The WQIF and its sub-funds have served as the principal funding source for nonpoint source pollution control projects in Virginia. The goal of the nonpoint source grant component of the WQIF is to improve water quality throughout the Commonwealth of Virginia and in the Chesapeake Bay by reducing nonpoint source pollution. Nonpoint source pollution is a significant cause of degradation of state waters throughout the Commonwealth. Within the Chesapeake Bay watershed, the immediate priority is to

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implement the Watershed Implementation Plans developed by the Commonwealth and approved by EPA in 2010 and 2012.

In the Southern Rivers watersheds (Virginia waters not draining to the Chesapeake Bay), the goal is to achieve measurable improvements in water quality, which can include nutrient and sediment reductions, as well as reduction of other pollutants. Other uses of grant funds may include providing protection or restoration of other priority waters such as those containing critical habitat, serving as water supplies, or that target acid mine drainage or other nonpoint pollution problems. As an example, the Ely Creek and Puckett Creek Sub-watersheds project involves mine land reclamation in the ecologically sensitive Powell River basin.

DCR was responsible for managing the distribution of the nonpoint WQIF and VNRCF grants during 2013. This includes managing the allocation of funding to the Agricultural Cost-Share Program and Conservation Reserve Enhancement Program (CREP) and soliciting applications for Water Quality Initiative grants and Cooperative Nonpoint Source Pollution Program Projects with local governments. In 2013 DCR allocated approximately \$3 million during January and February to fund the Virginia Enhanced Conservation Initiative (VECI) Program. This initiative provided additional cost-share funds to Virginia Cost-Share (VACS) program participants to fund 100 percent of the cost of implementing qualifying livestock stream exclusion BMPs.

Agricultural Best Management Practices Cost-Share Program

Agricultural conservation practices that are most effective in reducing excess nutrients and sediment from agricultural lands are implemented through the Virginia Agricultural Cost-Share (VACS) program managed by DCR. BMPs installed through the program must be implemented in accordance with the Virginia Agricultural BMP Manual. Virginia's 47 Soil and Water Conservation Districts (SWCDs or Districts) lead the implementation of the VACS program with funding from DCR to cover the cost-share expenditures, the technical assistance to administer the program and essential funding for district operations.

Conservation Reserve Enhancement Program

WQIF and VNRCF funds support Virginia's commitment for participation in the United States Department of Agriculture's (USDA) Conservation Reserve Enhancement Program (CREP). Under the USDA-administered CREP program, which is implemented through the SWCDs, eligible landowners may receive cost-share financial incentives for eligible program BMPs for establishment of riparian buffers and wetland restorations as well as rental payments for up to 15 years. DCR also provides additional financial incentives to landowners to enter into permanent easements on the restored and conserved riparian lands.

Water Quality Initiatives

In FY2013, DCR was the lead nonpoint source (NPS) agency in the Commonwealth of Virginia. Funding for water quality initiatives have been considered by DCR to manage other nonpoint source pollution priority needs and particularly cost effective, innovative, and new initiatives which further advance

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Virginia's nonpoint source programs and provide for measurable water quality improvements. These include initiatives with other state agencies, soil and water conservation districts, planning district commissions, local governments, educational institutions, and individuals on nonpoint source pollution reduction, education, research, and other NPS reduction activities such as acid mine land reclamation and nutrient management. During FY13 DCR and DEQ jointly worked on nonpoint source water quality initiatives and will continue this collaboration in the future.

Nonpoint Source Pollution Program Projects with Local Governments

In accordance with § 10.1-2127.B and C of the *Code of Virginia*, DCR works cooperatively with local governments to provide matching funds to locally administer identified solutions for nonpoint source runoff that cause or contribute to water quality problems, such as impairments of other state waters outside the local jurisdiction. Funding to localities for development of their stormwater management programs is an example of these cooperative efforts. During FY13 DCR and DEQ jointly developed and managed cooperative nonpoint source pollution projects with local governments.

2013 WQIF & VNRCF Nonpoint Source Program Funds

Agricultural Cost-Share Allocations

DCR's emphasis for BMP implementation focuses on efficient nutrient and sediment reduction including identified priority practices such as; cover crops, conservation tillage, nutrient management, livestock exclusion from streams, and the establishment of vegetative riparian buffers. Allocations to SWCDs for 2013 are summarized in the following table. Historical, annual cost share totals also are summarized below.

SWCD	SWCD FY 13 VACS Total BMP Funding	Virginia Enhanced Conservation Initiative 2012-2013
APPOMATTOX RIVER	\$109,824	\$0.00
BIG SANDY	\$71,413	\$0.00
BIG WALKER	\$234,939	\$8,725.32
BLUE RIDGE	\$512,803	\$0.00
CHOWAN BASIN	\$773,461	\$0.00
CLINCH VALLEY	\$308,711	\$79,007.61
COLONIAL	\$304,963	\$0.00
CULPEPER	\$1,252,147	\$292,034.25
DANIEL BOONE	\$351,214	\$98,076.38
EASTERN SHORE	\$822,937	\$0.00
EVERGREEN	\$195,422	\$55,880.22
HALIFAX	\$181,239	\$68,773.48
HANOVER-CAROLINE	\$284,231	\$9,450.00
HEADWATERS	\$1,009,476	\$216,597.90

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SWCD	SWCD FY 13 VACS Total BMP Funding	Virginia Enhanced Conservation Initiative 2012-2013
HENRICOPOLIS	\$44,450	\$0.00
HOLSTON RIVER	\$301,383	\$43,712.46
JAMES RIVER	\$198,341	\$11,496.58
JOHN MARSHALL	\$548,247	\$375,180.98
LAKE COUNTRY	\$241,370	\$36,898.72
LONESOME PINE	\$160,395	\$14,682.82
LORD FAIRFAX	\$887,398	\$180,869.22
LOUDOUN	\$327,343	\$134,733.43
MONACAN	\$136,565	\$26,892.11
MOUNTAIN	\$327,204	\$13,821.22
MOUNTAIN CASTLES	\$248,127	\$60,042.56
NATURAL BRIDGE	\$599,833	\$25,046.47
NEW RIVER	\$566,453	\$94,391.45
NORTHERN NECK	\$945,639	\$0.00
NORTHERN VA	\$65,003	\$0.00
PATRICK	\$187,422	\$114,799.56
PEAKS OF OTTER	\$264,535	\$192,513.74
PEANUT	\$899,985	\$0.00
PETER FRANCISCO	\$135,564	\$3,622.32
PIEDMONT	\$231,032	\$113,498.93
PITTSYLVANIA	\$249,038	\$35,576.87
PRINCE WILLIAM	\$69,969	\$0.00
ROBERT E. LEE	\$481,713	\$35,066.43
SCOTT COUNTY	\$411,674	\$100,071.70
SHENANDOAH VALLEY	\$1,121,716	\$17,556.96
SKYLINE	\$698,521	\$83,201.17
SOUTHSIDE	\$176,932	\$88,510.36
TAZEWELL	\$256,470	\$6,362.28
THOMAS JEFFERSON	\$677,927	\$275,788.40
THREE RIVERS	\$509,102	\$0.00
TIDEWATER	\$376,728	\$0.00
TRI-COUNTY/CITY	\$170,460	\$11,952.89
VIRGINIA DARE	\$472,867	\$0.00
TOTAL	\$19,402,186	\$2,924,834.78

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Program Year	Actual BMP Cost	State Cost Share Payment	Other Funding Amount	Farmers Cost Before Tax Credit \$	Tax Credit Amount Issued
1998	\$6,402,535	\$3,991,534	\$378,525	\$2,032,476	\$413,677
1999	\$3,816,452	\$3,146,798	\$134,592	\$535,062	\$199,108
2000	\$9,037,489	\$4,513,185	\$1,615,929	\$2,908,375	\$303,897
2001	\$4,289,272	\$2,977,908	\$108,887	\$1,202,477	\$255,708
2002	\$9,417,995	\$3,515,142	\$2,774,125	\$3,128,727	\$334,325
2003	\$4,420,792	\$1,371,713	\$1,248,782	\$1,800,297	\$227,606
2004	\$3,289,669	\$1,094,066	\$967,556	\$1,228,047	\$148,895
2005	\$4,833,719	\$2,452,749	\$538,009	\$1,842,962	\$275,752
2006	\$8,971,632	\$5,596,196	\$839,302	\$2,536,134	\$322,629
2007	\$14,572,719	\$11,039,403	\$938,603	\$2,594,714	\$426,905
2008	\$14,515,590	\$9,133,036	\$1,409,327	\$3,973,226	\$531,765
2009	\$16,629,830	\$10,894,949	\$2,091,108	\$3,643,772	\$525,027
2010	\$27,534,958	\$18,376,778	\$2,347,001	\$6,811,180	\$969,365
2011	\$8,873,245	\$5,615,431	\$421,632	\$2,836,183	\$503,184
2012	\$14,111,467	\$10,412,643	\$400,446	\$3,298,378	\$483,981
2013	\$23,293,018	\$17,706,851	\$2,526,666	\$3,059,501	\$627,272
Statewide Totals	\$174,010,382	\$111,838,382	\$18,740,190	\$43,431,511	\$6,549,096

Conservation Reserve Enhancement Program

The Virginia CREP program is divided into two regions. The Chesapeake Bay (CB) CREP targets Virginia's entire Chesapeake Bay watershed and is authorized to restore 22,000 acres of riparian buffers and filter strips as well as 3,000 acres of wetlands. The Southern Rivers (SR) CREP aims to restore 13,500 acres of riparian buffers and filter strips and 1,500 acres of wetland restoration. A summary of Virginia CREP cost share assistance to farmers during the period from June 2000 to June 2013 is provided in the following table:

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CREP Program to Date by Drainage - by Basin 06/10/2000 through 06/30/2013														
Drainage	Basin	Number of Participants	Number of Contracts	Number of BMPs	Acres Buffer Restored	Miles Stream Bank Protected	Tons SL Reduced	Pounds N Reduced	Pounds P Reduced	Total BMP Cost	Total Approved Cost Share Payment	Total Cost Share Payment	Other Funding Amount	Tax Credit Amount Issued
Chesapeake Bay	Chesapeake Bay Coastal	42	61	132	587.70	74.47	1,977.02	10,754.96	2,649.56	\$196,649.75	\$96,415.52	\$59,488.07	\$62,176.41	
Chesapeake Bay	James-Appomattox	138	212	569	4,840.16	93.49	11,274.87	61,291.24	13,946.25	\$3,278,704.23	\$772,786.72	\$605,497.79	\$1,039,731.18	\$30,055.45
Chesapeake Bay	James-Rivanna	69	101	231	2,915.08	50.34	1,856.38	10,098.71	1,498.67	\$1,639,339.03	\$299,956.68	\$248,382.16	\$913,245.69	\$23,935.97
Chesapeake Bay	Lower James	10	12	33	153.60	19.66	172.63	939.10	239.49	\$25,828.32	\$16,108.27	\$12,070.14	\$6,910.00	
Chesapeake Bay	Lower Potomac	62	89	206	1,455.90	62.08	3,220.86	17,501.89	2,852.85	\$1,049,587.41	\$228,882.65	\$196,517.95	\$428,371.00	\$8,757.88
Chesapeake Bay	Middle James	198	288	690	5,419.40	159.89	6,566.98	35,724.40	5,566.15	\$4,325,859.90	\$960,600.36	\$701,501.36	\$1,943,558.29	\$55,750.08
Chesapeake Bay	Potomac-Shenandoah	414	638	1503	9,042.30	273.27	25,181.79	136,795.80	30,125.45	\$9,034,077.05	\$2,210,895.13	\$1,699,064.97	\$4,468,332.39	\$83,390.47
Chesapeake Bay	Rappahannock	181	333	690	7,899.68	210.22	32,541.17	177,023.96	28,768.22	\$5,381,260.24	\$1,889,670.77	\$1,194,234.33	\$1,727,293.60	\$3,642.61
Chesapeake Bay	Upper James	164	238	547	3,875.10	102.97	5,870.34	31,934.65	5,710.98	\$3,587,964.96	\$838,753.25	\$664,472.95	\$1,636,676.94	\$16,330.25
Chesapeake Bay	Upper Potomac	26	40	84	1,046.50	21.37	1,403.15	7,633.14	1,082.30	\$818,118.42	\$207,386.73	\$174,385.81	\$358,750.00	
Chesapeake Bay	York	79	122	262	3,304.90	68.78	3,300.15	17,952.79	2,638.23	\$1,824,055.46	\$402,416.30	\$324,618.88	\$1,046,296.50	\$11,800.00
Chesapeake Bay Drainage Basin Totals		1,383	2,134	4,947	40,540	1,137	93,365	507,651	95,078	31,161,445	7,923,872	5,880,234	13,631,342	233,663
Southern Rivers	Albemarle Sound Coastal	32	56	109	794.30	86.96	1,082.66	5,889.69	1,286.34	\$166,586.32	\$74,931.85	\$68,832.46	\$63,912.07	
Southern Rivers	Atlantic Ocean Coastal	14	18	69	207.30	21.72	467.16	2,541.34	654.16	\$62,619.26	\$22,975.62	\$18,370.88	\$17,766.50	\$6,401.00
Southern Rivers	Chowan-Meherrin	92	135	287	3,604.40	57.76	2,507.33	13,527.28	3,506.71	\$1,404,373.43	\$467,487.46	\$363,982.88	\$627,690.91	\$8,486.27
Southern Rivers	Lower Chowan	11	16	35	149.50	119.15	126.05	364.45	108.21	\$34,746.80	\$16,405.50	\$16,240.16	\$14,147.00	
Southern Rivers	Lower Roanoke	4	4	7	17.80	1.11	45.60	248.06	65.48	\$25,595.00	\$7,610.50	\$7,535.00	\$116.00	
Southern Rivers	New River	258	326	806	7,562.93	143.81	11,808.20	63,436.94	11,429.99	\$4,785,081.65	\$1,025,294.00	\$875,137.66	\$1,494,416.85	\$12,874.32
Southern Rivers	Roanoke-Dan	95	151	437	3,452.06	73.16	7,840.12	42,546.36	9,280.99	\$2,874,201.11	\$2,399,529.31	\$554,092.55	\$1,359,712.36	\$45,304.18
Southern Rivers	Tennessee-Clinch	232	326	836	5,556.90	120.59	11,535.27	62,434.18	11,688.42	\$4,858,973.51	\$751,581.22	\$553,017.28	\$2,128,712.57	\$126,597.18
Southern Rivers	Tennessee-Holston	512	799	1987	5,114.20	261.63	32,993.90	179,234.40	34,886.17	\$8,263,226.15	\$1,440,364.70	\$1,245,352.62	\$4,005,417.00	\$87,586.77
Southern Rivers	Tennessee-Powell	57	84	159	319.70	13.09	306.90	1,669.54	306.90	\$586,379.47	\$148,684.23	\$62,325.94	\$303,176.50	\$3,746.45
Southern Rivers	Upper Chowan	164	235	673	4,774.61	232.52	4,778.50	25,995.06	7,230.20	\$1,122,024.66	\$486,052.91	\$374,636.86	\$338,195.63	\$7,088.52
Southern Rivers	Upper Roanoke	118	155	410	2,833.06	76.23	9,532.46	51,856.57	10,600.09	\$2,889,856.90	\$700,142.43	\$578,282.01	\$1,339,582.93	\$25,321.56
Southern Rivers	Yadkin	7	7	19	107.80	2.00	282.40	1,536.26	282.40	\$69,170.54	\$15,451.30	\$15,451.30	\$11,454.20	\$390.12
Southern Rivers Drainage Basin Totals		1,596	2,312	5,834	34,495	1,210	83,307	451,280	91,326	27,142,835	7,556,511	4,733,258	11,704,301	323,796

Cooperative Nonpoint Source Pollution Programs with Local Governments and Strategic Nonpoint Source Water Quality Initiatives Grants

DCR manages two WQIF competitive grant programs related to Cooperative NPS Pollution Programs and Strategic Water Quality Initiatives. Awards are intended to reduce pollution through partnerships with local governments, community groups, state agencies, soil and water conservation districts and others. The General Assembly appropriated \$ 1 million in Water Quality Reserve Funds in FY12 and \$1 million in Water Quality Improvement Funds in FY13 to provide funds to localities to establish stormwater management programs. In addition to these appropriations, DCR reprogrammed funds from closed Water Quality Initiatives which allowed the state to issue \$527,796 in FY12 and \$340,000 in FY13 through competitive requests for proposals for acid mine drainage and \$345,827 for nutrient management planning.

State Water Quality Funding committed in FY13 through competitive requests for proposal for Cooperative Nonpoint and Strategic Water Quality Initiatives

Program	Water Quality Reserve Fund	Water Quality Improvement Fund
Cooperative Nonpoint Source – Phase I Stormwater Management Program	\$1,000,000 (new)	
Cooperative Nonpoint Source – Phase II Stormwater Management Program		\$1,000,000 (new)
Strategic Water Quality Initiatives – Acid Mine Drainage Remediation		\$865,796 (reprogram)
Strategic Water Quality Initiatives – Virginia Pollution Abatement (VPA) Nutrient Management Planning for Animal Operations		\$345,827 (reprogram)
TOTAL	\$1,000,000	\$2,211,623

Cooperative Nonpoint Source Pollution Programs with Local Governments: *New Appropriations for Stormwater Management Program Development*

Phase 1

During the FY12 Legislative Session the General Assembly appropriated \$1 million in Water Quality Reserve Funds to assist localities with developing stormwater management programs throughout the Commonwealth of Virginia. DCR also received \$1,087,008 of federal funds from the Environmental Protection Agency's 319(h) Nonpoint Source Implementation Grant and the Chesapeake Regulatory and Accountability Program Grant for a total of available funding of \$2,087,008. The "2012 Virginia Locality Stormwater Program Request for Proposals" (DCR199-T-2012073012) was issued in July 2012 by DCR. Fifty-nine proposals were received and funds awarded. These 59 projects will enable 100 local governmental entities to develop local stormwater programs including the adoption of water quality standards for development and redevelopment that are equal to, or more stringent than, the state standard.

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The purpose of these grant awards is to support projects to build local government programs and capacity that will result in the development of local stormwater programs consistent with the Virginia Stormwater Management Act and applicable regulations. The issuance of grants for Locality Stormwater Program Development was pursuant to §§ 10.1-2128 and 10.1-603.3.C (now 62.1-44.15:27.C) of the *Code of Virginia*. Specifically, development of local stormwater programs will include local adoption of water quality standards for development and redevelopment that are equal to, or more stringent than, the state standard. The minimum requirements for a grant project funding award included a plan and commitment to submit the following required products to DCR by April 1, 2013: (1) A primary contact name and contact information for the development of the local stormwater management program; (2) Development of a preliminary draft ordinance (did not have to be approved by local elected body at the time); and, (3) Development of a draft funding and staffing plan which must include: a list of program funding sources, a description of staff roles and numbers of staff personnel by locality department.

Ten proposals were submitted by regional entities such as the Planning District Commissions and Soil and Water Conservation Districts. These project proposals covered from two to seven partner localities. The remaining 49 proposals came in from individual counties, cities and towns across the Commonwealth. DCR awarded funding to 31 projects totaling \$1,232,861 located in the Chesapeake Bay watershed, and 28 projects totaling \$854,147 located in the state's Southern Rivers watersheds.

Grant agreements were issued effective December 1, 2012 and are effective through June 30, 2014. As of April 1, 2013, all 100 localities covered under the agreements had submitted the three required elements and had received a one-year extension by the Virginia Soil and Water Conservation Board for submitting their final VSMP programs until July 1, 2014.

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2012 Virginia Locality Stormwater Program Development Grant Program

#	Applicant /Sponsor	Localities Included	Grant Award Amount
CHESAPEAKE BAY WATERSHED			\$ 1,232,861
1	Accomac- Northampton PDC	Accomac Co; Northampton Co	\$ 42,000
2	Alleghany County	Same	\$ 19,834
3	Town of Ashland	Same	\$ 25,000
4	Augusta County	Same	\$ 25,000
5	Bath County	Same	\$ 33,402
6	City of Buena Vista	Same	\$ 27,000
7	Charles City County	Same	\$ 25,000
8	City of Chesapeake	Same	\$ 25,000
9	Chesterfield County	Same	\$ 25,000
10	Town of Colonial Beach	Same	\$ 25,000
11	Craig County	Same	\$ 13,934
12	City of Fairfax	Same	\$ 25,000
13	Frederick County	Same	\$ 21,000
14	George Washington Regional Commission	Caroline Co; Town of Bowling Green; Town of Port Royal; King George Co; City of Fredericksburg, Spotsylvania Co; Stafford Co	\$ 99,785
15	Goochland County	Same	\$ 28,000
16	City of Hampton	Same	\$ 43,550
17	Henrico County	Same	\$ 22,590
18	Highland County	Same	\$ 25,257
19	Isle of Wight County	Same	\$ 25,000
20	Loudon County	Same	\$ 25,000
21	Middle Peninsula PDC	Essex, Gloucester, King & Queen, King William, Mathews, Middlesex	\$ 99,857
22	Northern Neck PDC	Lancaster, Northumberland, Richmond Co, Westmoreland	\$ 64,000
23	Northern Shenandoah PDC	Clarke, Page, Shenandoah, Warren	\$ 84,000
24	City of Petersburg	Same	\$ 45,652
25	Rappahannock-Rapidan PDC	Culpeper, Madison, Rappahannock, Greene, Orange, Town of Culpeper	\$ 105,000
26	Region 2000	Appomattox, Amherst, Bedford, and Campbell	\$ 63,000
27	City of Richmond	Same	\$ 25,000
28	Rockbridge County	Same	\$ 45,000
29	City of Suffolk	Same	\$ 25,000
30	Thomas Jefferson SWCD	Nelson Co; Louisa Co	\$ 50,000
31	City of Waynesboro	Same	\$ 25,000

Note: These values are a mix of Federal funds and State Water Quality Reserve Funds. The Town of Colonial Beach cancelled their agreement midway through the 3rd quarter of FY13 and the work was assumed by the planning district commission.

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#	Applicant /Sponsor	Localities Included	Grant Award Amount
<i>SOUTHERN RIVERS WATERSHEDS</i>			\$ 854,147
32	Bland County	Same	\$ 12,000
33	Town of Bluefield	Same	\$ 25,003
34	Brunswick County	Same	\$ 13,760
35	Buchanan County	Same	\$ 25,000
36	Campbell County	Same	\$ 6,000
37	Carroll County	Same	\$ 32,100
38	Dinwiddie County	Same	\$ 38,700
39	Franklin County	Same	\$ 32,250
40	City of Galax	Same	\$ 43,500
41	Giles County	Same	\$ 19,722
42	Grayson County	Same	\$ 23,000
43	Greensville County	Same	\$ 42,864
44	Lee County	Same	\$ 20,015
45	City of Martinsville	Same	\$ 35,000
46	Mecklenburg County	Same	\$ 13,412
47	New River Valley PDC	Pulaski Co; Montgomery Co; Floyd Co; Glen Lyn; Dublin; Pearisburg; Pulaski; Radford	\$ 100,000
48	City of Norton	Same	\$ 13,811
49	Patrick County	Same	\$ 25,000
50	Prince Edward County	Prince Edward, Amelia, Buckingham, Charlotte, Cumberland, Lunenburg and Nottoway Counties	\$ 100,000
51	Russell County	Same	\$ 27,000
52	Scott County SWCD	Scott County	\$ 25,000
53	Smyth County	Same	\$ 19,700
54	Town of South Hill	Same	\$ 13,600
55	Tazewell County	Same	\$ 36,100
56	Washington County	Same	\$ 39,000
57	Wise County	Same	\$ 13,768
58	Wythe County	Wythe Co, Town of Rural Retreat	\$ 33,842
59	Town of Wytheville	Same	\$ 25,000

Note: These values are a mix of Federal funds and State Water Quality Reserve Funds.

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Phase 2

During the FY13 Legislative Session, the General Assembly appropriated \$1 million in Water Quality Improvement Funds to assist localities with finalizing adoption of local stormwater management programs throughout the Commonwealth of Virginia. DCR also received \$879,908 of federal funds from the Environmental Protection Agency's Chesapeake Regulatory and Accountability Program Grant for a total of available funding of \$1,879,908. During its 2013 Legislative Session, the General Assembly passed Chapters 756 (HB2048) and 793 (SB1279) of the 2013 Virginia Acts of Assembly which designated the Virginia Department of Environmental Quality as the lead agency for stormwater management programs in the Commonwealth of Virginia. During FY13 DCR and DEQ jointly worked on continuing assistance to localities for developing local stormwater management programs. The "2013 Virginia Locality Stormwater Program Development Phase II Request for Proposals" was issued on June 3, 2013 jointly by DCR and DEQ.

The purpose of these grant awards is to support projects to build local government programs and capacity that will result in the development of local stormwater programs consistent with the Virginia Stormwater Management Act and applicable regulations. The issuance of grants for Locality Stormwater Program Development is pursuant to §§ 10.1-2128 and 62.1-44.15:27.C (formerly 10.1-603.3.C) of the *Code of Virginia*. Specifically, development of final local stormwater programs will include local adoption of water quality and quantity criteria for new development and redevelopment and procedures for plan review, inspection and enforcement of these criteria through local ordinances, policies and procedures consistent with the Virginia Stormwater Management Program (VSMP) regulations. The minimum requirements are the submission of a preliminary final package to DEQ for review by December 15, 2013 and a final package, including an adopted local Virginia Stormwater Management Program (VSMP) ordinance by April 1, 2014; specific requirements for submittals were detailed in the request for proposals for this grant.

The deadline for submitting proposals to DEQ was July 15, 2013. Results of the Phase II stormwater Request For Proposals will be detailed in the FY14 report issued next year.

Strategic Water Quality Initiatives: *Reprogramming existing funds*

Virginia Coal-based Acid Mine Drainage Remediation

In May 2012 the "2012 Virginia Coal-based Acid Mine Drainage Remediation in the Powell River" request for proposals (RFP) was issued. It utilized balances of grant funds that became available from closed Cooperative Nonpoint Source or Strategic Water Quality Initiatives projects from prior year appropriations. The Virginia Department of Conservation and Recreation competitively awarded the Daniel Boone Soil and Water Conservation District and its partners \$595,736 to complete four remediation projects in this targeted watershed. The RFP was intended to fund on-the-ground projects that will remedy the last remaining acid mine drainage (AMD) seeps in the Ely and Puckett Creek watersheds, sub-watersheds of the Powell River, which is home to many endangered or threatened aquatic species. These streams are also identified in the Straight Creek Total Maximum Daily Load (TMDL) Implementation Plan for total dissolved solids making the projects eligible for Section 319(h) federal funding as well as state WQIA funds. This funding must be matched with realty, design and project management funding to construct passive treatment systems that will eliminate the acidic inflow affecting these streams. By leveraging just over \$86,000 from the federal funding source and almost \$1.1 million of

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partnership funding, the reprogrammed Strategic Water Quality Initiative funding will advance a \$1.6 million water quality project need in Southwest Virginia.

It was determined that additional acid mine drainage sites were problematic in the Straight Creek sub-watershed of the North Fork Powell River. As balances became available upon satisfactory completion of former Strategic Water Quality Initiative projects, a second acid mine drainage RFP was developed and issued on February 28, 2013. The Daniel Boone SWCD, along with its partners was awarded a second grant for \$240,000 and leveraged another \$394,444 in matching contributions. This project remediated two additional sites in the Straight Creek sub-watershed of Powell Creek, addressing the acid mine drainage treatment need as identified in the TMDL Implementation Plan.

Project Sponsor	Project Title	WQIF Award Amount	Match Amount	TOTAL Project
Daniel Boone SWCD	Ely Creek & Puckett Creek Sub-watersheds Project	\$595,736	\$1,055,316	\$1,651,052
<p>Project Abstract: Several acid mine drainage (AMD) sites have been identified in the North Fork Powell River Watershed. Many AMD sites located in the Ely Creek and Puckett Creek subwatersheds have been remediated by various federal and state agencies in recent years. The objective of this project is to remediate the remaining AMD sites located in these two sub-watersheds. The completion of this project should make great progress in helping aquatic ecosystems in the area to recover from years of degradation related to past coal mining practices. Improving these sub-watersheds will also improve the downstream habitat in the main stem of the Powell River thereby improving the chances of survival for 29 threatened or endangered freshwater mussel species. Aesthetic values should improve in the area leading to improved socioeconomic conditions.</p> <ul style="list-style-type: none"> • <u>Davis Wetland Site</u>- Acid mine drainage discharge emanates from a small underground mine along the western descending toe of the slope. AMD runs along an unnamed tributary and discharges into Big Branch before entering Puckett Creek. The proposed treatment system is construction of one successive alkalinity producing system (SAPS) pond and one anaerobic wetland. The estimated benefits of this system, taken from the watershed plan, are 0.06 pH increase, 0.18 stream miles of water quality improvement, and 0.78 stream miles of potential fishery recovered. • <u>Triple R Mine Site</u>- Two identified seepage areas exist on a critically eroding site located on a hill above Puckett Creek. The proposed treatment system is construction of 2 separate open limestone channels, each one draining into a separately constructed sediment pond. The estimated benefits of this system, taken from the watershed plan, are 0.24 pH increases, 0.28 stream miles of water quality improvement, and 0.76 stream miles of potential fishery recovered. • <u>Dean Site</u>- Seeps have been located at the toe of the slope along abandoned mine works. These seeps discharge into Ely Creek and into beaver ponds adjoining the creek. The proposed treatment system will bring the AMD through approximately 100 feet of open limestone channel and discharge it into a constructed anaerobic wetland. According to the watershed plan the completion of this final site along the main stem of Ely Creek should increase pH by 0.74, increase water quality improvements associated with critical erosion for 0.40 stream miles, and increase potential fishery recovery for 0.62 stream miles. • <u>Baker Mine Site</u>- Acid mine drainage discharges from a high wall into an unnamed tributary of Ely Creek. The proposed treatment system is construction of an open limestone channel to bring the AMD to a natural wetland downstream from the seep. The estimated benefits for this system, taken from the watershed plan, are 0.49 pH increase 				
TOTAL 2012 AWARD AMOUNT		\$595,736	\$1,055,316	\$1,651,052

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Project Sponsor	Project Title	WQIF Award Amount	Match Amount	TOTAL Project
Daniel Boone SWCD	Straight Creek AMD Remediation Project	\$340,000	\$394,444	\$734,444
<p>Project Abstract: Several acid mine drainage (AMD) sites have been identified in the North Fork Powell River Watershed of Lee County. Project partners will implement watershed plans addressed by various agencies and groups to remediate some of these AMD sites along Straight Creek. The completion of this project will help aquatic ecosystems in the area recover from years of degradation related to past coal mining practices. Improving this sub-watershed will also improve the downstream habitat in the main stem of the Powell River thereby improving the chances of survival for 29 threatened or endangered freshwater mussel species and 19 species of rare fish species. As a result aesthetic values will improve in the area leading to improved socioeconomic conditions.</p> <ul style="list-style-type: none"> • <u>Wagonertown 2 Site</u>-Acid mine drainage seeps at this site are located along an unnamed tributary to Straight Creek south of the town of St. Charles. The proposed treatment system is construction of approximately 600 feet of open limestone channel along this unnamed tributary with a constructed wetland at the end of the system. According to the watershed plan the estimated benefits of this system in conjunction with the 700 foot open limestone channel installed upstream of this site in 2002 by the DMME AML Program are 1.53 pH increase, 0.23 stream miles of water quality improvement, and 0.76 miles of potential fishery recovered. • <u>Penhook Site</u>-Acid mine drainage from mine portals discharges into an unnamed tributary before entering Straight Creek. The planned treatment system is to capture AMD from three portals and seeps and to bring it through a constructed successive alkalinity producing system (SAPS) pond and anaerobic wetland. The Virginia Department of Mines, Minerals & Energy, Division of Mine Land Reclamation (DMME-DMLR) has provided an in-depth analysis on projected site conditions and stream quality benefits after completion of construction. Effluent values in pH, acidity, Total Iron, Manganese, and Aluminum are projected to be near target values for optimum stream quality. Complementing this site with the Wagonertown 2 Site downstream will improve water quality in Straight Creek allowing for additional fishery recovery 				
TOTAL 2013 AWARD AMOUNT		\$340,000	\$394,444	\$734,444

Nutrient Management Plan Development for Animal Operations in Virginia

A Request for Proposals was issued in 2012 soliciting proposals to establish agreements through competitive negotiation for the writing of nutrient management plans for animal waste and poultry waste permits. Funding was targeted for the development of Nutrient Management plans for Virginia Pollution Abatement and Virginia Pollutant Discharge Elimination System (VPDES) permits only. Successful awardees had to be Virginia Certified Nutrient Management Planners certified in the agricultural category. Two grants were awarded for a total of \$92,840, with the intent to develop plans for 25,460 acres. These projects are well underway.

With over \$250,000 remaining in the allocation for Nutrient Management planning for Virginia animal operations, a second Request or Proposals was issued March 7, 2013. Four proposals were awarded funding for projects which began in July 2013. The specific goals of each of these projects are detailed below.

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Project Sponsor	Project Title	Total Chesapeake Bay Funds	Total Non-Bay Funds	TOTAL WQIF Award
Valley Fertilizer and Chemical Company		\$57,200	\$0	\$57,200
Write nutrient management plans for VPA animal operations for 14,000 acres in the Chesapeake Bay and 6 transfer plans.				
Ecosystem Services, LLC		\$42,000	\$4,000	\$46,000
Write nutrient management plans for VPA animal operations for 10,000 acres in the Chesapeake Bay and 1,000 acres in the non-bay Southern Rivers area. In addition 10 nutrient management transfer plans will be written.				
Mattaponi Resources, LLC		\$25,600	\$18,800	\$44,400
Write nutrient management plans for VPA animal operations for 5,500 acres in the Chesapeake Bay and 1,500 acres in the non-Bay Southern Rivers area. Write plans addressing the import of nutrients for VPA animal operations for 4,000 acres in the Chesapeake Bay and 1,000 in the non-Bay Southern Rivers area. In addition 3 nutrient management transfer plans will be written in the Chesapeake Bay and 4 will be written in the Southern Rivers.				
Blackwell Engineering, PLC		\$42,500	\$0	\$42,500
Write nutrient management plans for VPA animal operations for 8,100 acres and 10 transfer plans in the Chesapeake Bay. Write plans addressing the import of nutrients for VPA animal operations for 4,050 acres in the Chesapeake Bay				
TOTAL AWARD AMOUNT		\$167,300	\$22,800	\$190,100

WQIF Point Source Program

There are currently 58 signed WQIF agreements, obligating \$649 million in state grants ranging from 35% to 90% cost-share, for design and installation of nutrient reduction technology at Bay watershed point source discharges. This is critical support for compliance with the nutrient discharge control regulations and achieving Chesapeake Bay nitrogen and phosphorus waste load allocations. A summary of active grant projects is accessible via the DEQ-WQIF webpage at the following web address: <http://www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance/WaterQualityImprovementFund/WaterQualityImprovementFundList.aspx>.

Since its formation in 1998, the WQIF Point Source Program has received a total of \$849.3 million in appropriations and accrued interest, with the most recent appropriation of \$106 million made to the WQIF by the 2013 General Assembly. This newest funding will be in the form of bond proceeds.

Approximately \$95.3 million of the total funding made available was used for 24 voluntary/cooperative grants prior to the adoption of nutrient discharge control regulations in late 2005. A total of \$4.01 million was awarded for 39 technical assistance grants, including Basis of Design Reports, Interim Optimization Plans, and startup support for the Nutrient Credit Exchange Association. The balance has been awarded for the design and installation of nutrient reduction technology to meet the waste load allocations assigned to the significant dischargers in the Chesapeake Bay watershed under the EPA-approved Chesapeake Bay TMDL.

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As of September 18, 2013, the grant amount owed under existing, signed WQIF agreements was \$64,229,137. It is projected that reimbursement requests for ongoing projects and several new agreements expected to be signed over the next year can be covered with available funding through FY16. Beyond that, a shortfall may exist depending on construction schedules, and the number and cost of new agreements signed, which may be as many as 10 that have been identified as likely grant applicants. The potential over-obligation of the WQIF is due to the statutory requirement for DEQ to approve and enter into funding agreements with all eligible applicants, except if the project is deferred based on the cost-effectiveness and viability of nutrient trading in-lieu of nutrient reduction technology installation.

The over-obligation can be managed with additional funding to capitalize the WQIF, which may be provided by the General Assembly through the state budget process, and also with unused funds returned to the WQIF as projects are completed. It should be noted that all grantees are obligated to complete their projects regardless of the amount of grant funds received, while the Commonwealth commits to fully fund all projects, subject to the availability of funds.

To date, 50 of the 58 projects with signed grant agreements have initiated operation. With all these projects coming on-line, annual nutrient loads discharged from wastewater plants in the Bay watershed have declined dramatically. From 2009 to 2012, Virginia saw greater reductions from wastewater facilities than any other state in the Chesapeake Bay watershed. Annual nitrogen discharges were reduced by about 7,010,000 pounds; phosphorus annual loads were reduced by almost 567,000 pounds, exceeding the milestone commitments set in Virginia's Watershed Implementation Plan (WIP) for both nutrients. As a result of these ongoing nutrient control upgrades, point source loads continue to be well below the allocations called for in the WIP and TMDL.

WQIF & Virginia Natural Resources Commitment Fund (VNRCF) Nutrient Reductions

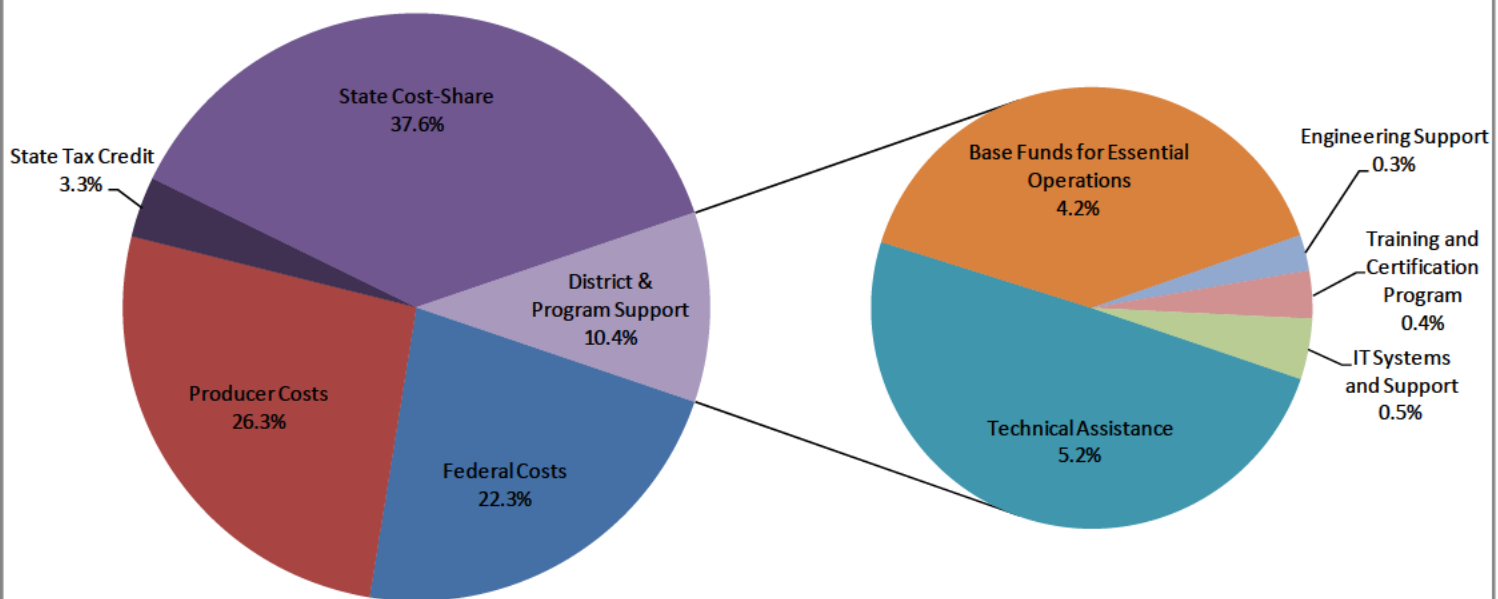
Estimated Nutrient Reductions from Nonpoint Source WQIF-Funded Projects

During FY13, WQIF and VNRCF funding supported agricultural BMPs that are expected to reduce edge of field nutrient and sediment losses by almost 6.4 million pounds of nitrogen, 1,576,339 pounds of phosphorus, and 1,191,295 tons of sediment. CREP implementation is included in the above reductions.

Chapter 2 - Annual Funding Needs for Effective Implementation of Agricultural Best Management Practices

In accordance with subsection C of §10.1-2128.1 of the Water Quality Improvement Act, the Department of Conservation and Recreation in consultation with a stakeholder advisory group (SAG), including representatives of the agricultural community, the conservation community, and the Soil and Water Conservation Districts, has determined the annual funding needs for effective Soil and Water Conservation District technical assistance and implementation of agricultural best management practices. Pursuant to § 2.2-1504 of the *Code of Virginia*, DCR must provide to the Governor the annual funding amount needed for each year of the ensuing biennial period and an estimate of the same for the next two succeeding biennium. For the fiscal years 2015 – 2020, an estimate of \$1.316 billion may be required from state and federal funds as well as farmer financial contributions to meet water quality goals. Approximately 50 percent of this total could be needed from State sources, the vast majority of which is direct funding of the Virginia Agricultural Cost-Share Program.

2013 Agricultural Needs Assessment
Total Costs 2015-2020
Estimate = \$1,317,799,058



2013 Agricultural Needs Assessment Biennial Needs Summary

Estimated State Costs 2015 - 2025	Budget Code	2015 - 2016 Biennium		2017 - 2018 Biennium		2019 - 2020 Biennium	
		2015	2016	2017	2018	2019	2020
Chesapeake Bay Cost-Share	50323	\$ 18,038,525	\$ 30,405,024	\$ 58,833,120	\$ 61,061,156	\$ 63,211,371	\$ 65,398,729
Chesapeake Bay Technical Assistance	50322	\$ 6,236,311	\$ 6,472,483	\$ 6,700,405	\$ 6,932,265	\$ 7,168,062	\$ 7,407,797
Southern Rivers Cost-Share	50323	\$ 12,025,684	\$ 20,270,016	\$ 39,222,080	\$ 40,707,437	\$ 42,140,914	\$ 43,599,152
Southern Rivers Technical Assistance	50322	\$ 4,157,540	\$ 4,314,988	\$ 4,466,937	\$ 4,621,510	\$ 4,778,708	\$ 4,938,531
Base Funds for Essential Operations	50320	\$ 9,127,866	\$ 9,127,866	\$ 9,127,866	\$ 9,127,866	\$ 9,127,866	\$ 9,127,866
Engineering Support	50301	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000
Training and Certification Program	50301	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000
IT Systems Updates and Support	50301/50320	\$ 1,100,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Total		\$ 52,085,926	\$ 72,990,377	\$ 120,750,408	\$ 124,850,235	\$ 128,826,921	\$ 132,872,075

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In order to estimate the future funding needs the SAG evaluated the cost to implement best management practices identified in the Chesapeake Bay WIP. The implementation schedule focuses on full implementation by 2025, recognizing the need to significantly expand program capacity by 2017 to demonstrate the Commonwealth's commitment to reducing agricultural loads. The table below shows the practices implemented through 2009, implementation progress through 2012 and the BMPs identified in Virginia's WIP. These practices were the basis for this needs assessment. These figures represent the BMPs that were accepted into the Chesapeake Bay Watershed model. For a few BMPs, the model is known to accept fewer numbers of BMPs than have actually been installed and reported. This BMP cutoff can result from several factors. First, the land use in the model is not completely accurate, which can cause BMP cutoff when the available land use has been fully treated. In other cases, cutoff is the result of modeling assumptions that preclude certain BMPs from being used on the same acre of land. This is the case with the Continuous No-Till BMP. The model does not allow the practice to be used in combination with nutrient management or cover crops on the same acre. Using the approved BMPs aligns these cost estimates with the WIP implementation levels and the current model, but does produce approximately a 2% underestimate of actual implementation that has been completed, and therefore a potential 2% overestimate of the future costs.

BMPs		2009 Progress	2012 Progress	WIP - 2025
Animal Waste Management	systems	1,577	1,582	5,119
Barnyard Runoff Control	acres	528	1,304	5,488
Commodity Cover Crop	acres	25,869	25,646	76,210
Conservation Plan	acres	945,824	1,111,521	1,883,053
Continuous No-Till	acres	78,567	75,399	304,400
Cover Crop	acres	53,946	79,351	232,648
Forest Buffers	acres	16,826	19,407	99,437
Grass Buffers	acres	33,139	24,559	140,959
Horse Pasture Management	acres	0	0	23,570
Land Retirement	acres	81,525	91,392	102,542
Manure Transport	tons	2,859	26,866	148,500
Mortality Composters	systems	3	29	127
Non-Urban Stream Restoration	feet	19,332	318,529	318,529
Nursery Capture Reuse	acres	0	0	3,753
Nutrient Management	acres	611,498	571,331	1,005,211
Pasture Fence	acres	33,866	51,568	56,029
Precision Agriculture	acres	0	0	157,869
Rotational Grazing	acres	242,748	287,299	534,265
Tree Planting	acres	16,224	29,149	107,108
Water Control Structure	acres	0	156	700
Wetland Restoration	acres	214	420	19,215

For the Southern Rivers areas, the needs assessment is based on the Chesapeake Bay annual cost estimates and the legislative mandate in §10.1-2128.1 of the *Code of Virginia* for Virginia Natural Resources Commitment Fund funds to be split 60% to the Chesapeake Bay watershed and 40% to the Southern Rivers watershed. The funding needs calculated using the 60% Chesapeake Bay/40% Southern Rivers split were compared with the estimated cost of implementing agricultural best management practices

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according to existing TMDL implementation plans for impaired streams in the Southern Rivers region (approximately 5,109 square miles) and extrapolating those costs to the entire Southern Rivers area (approximately 18,821 square miles). Recognizing that implementation in the Southern Rivers is not affected by the 2025 deadline associated with the Chesapeake Bay TMDL, the comparison showed that using the 60/40 split as an approximation of the long term Southern Rivers implementation needs is sufficient. As additional TMDL implementation plans are developed in the Southern Rivers area, this analysis should be reevaluated.

To complete the implementation cost estimate, an additional 14.4% of the total cost for each year is added to account for other BMPs that are supportive of WIP practices but not explicitly quantified. Then a 2% per year inflation factor is applied to the BMP costs for 2014 and beyond. The total annual implementation costs are then divided between the various funding sources: Federal (25% [assumed]), State Cost-Share (42%), State Tax Credit (3.5%), and Agricultural Producer (29.5%). The BMP unit costs, supportive BMP percentage, and funding distribution percentages are based on data captured in the VACS Tracking Database for fiscal years 2012-2013.

Once the State Cost-Share portion was determined for each year, the technical assistance needs to implement the Cost-Share program was calculated as 10.6% of the Cost-Share figure. This estimate is derived from budget data submitted by SWCD's in 2013. The SAG estimated that there is a district staff training lag of two years, meaning from time of hire, on average, it will take two years of training and experience for a district employee to become fully functional in their position. This training lag means that as the VACS program expands, technical assistance funding and resources should be advanced by two years to allow for hiring and training of SWCD staff.

The increase in district technical staffing associated with the expanded funding needs may exceed the estimated maximum number of new staff that could be trained under the current training arrangement between the Natural Resources Conservation Service (NRCS), DCR, and soil and water conservation districts. To reduce this shortfall in training capacity, the SAG recommended the development of an internal DCR-SWCD training and certification program to further build capacity while removing the current reliance on NRCS for training. Development of this training and certification program is estimated to cost \$800,000 per year.

The SAG also identified engineering support as a factor that could limit the ability of soil and water conservation districts to deliver expanding cost share funding to farmers. NRCS has historically provided the engineering support for SWCD staff. In August 2013, NRCS announced their intent to discontinue this arrangement effective October 1, 2013. In the face of expanding program needs for engineering support, the SAG recognized the need to build internal capacity within DCR to provide engineering support. The SAG discussed adding one engineer for each of the six SWCD areas at an annual cost of \$600,000.

Another potential bottleneck in program delivery identified by the SAG is in information systems and technology. Soil and water conservation districts are operating using outdated computers, old software and a database that needs improvements to address the expanding role of districts in tracking voluntary practices and implementing Resource Management Plans. The information technology committee of the Virginia Association of Soil and Water Conservation Districts estimated technology needs to be \$1,100,000 in 2015 and \$1,000,000 annually thereafter to improve and maintain information systems and improve technology. This total includes both shared and district specific needs for software development/modification, Web/database hosting, project & data management, net conferencing, curriculum development and training. This amount would be split \$700,000/year to DCR (50301) for "Shared Resources" and \$400,000/year to SWCDs (50320) for "District Level" needs in 2015 and \$650,000/year to DCR (50301) and \$350,000/year to SWCDs (50320) in future years.

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In addition to the estimated costs above, Soil and Water Conservation Districts receive base funding for essential operations. The funding needs estimate for essential operations is based upon the budget data submitted by SWCD's in 2013. If every district is expected to receive the exact same amount for base operations every year, the cumulative needs for the 47 SWCDs is \$9,127,866 per year. This amount includes Director's travel, resource management plans, targeted TMDLs, dam maintenance, and DCR managed contracts.

This funding schedule in this needs assessment may not achieve 60% of the agricultural implementation by 2017 as was indicated in Table 5.4-4 of Virginia's Phase I WIP. However, it is anticipated that the Commonwealth's 2017 Bay goal would still be met by over-achievement in other sectors, specifically wastewater treatment plants, and adaptive management. Improved tracking of voluntarily installed practices, technological improvements in practices, program efficiency, other cost reduction strategies and changes to improve the Bay Model are difficult to quantify, but all are expected to reduce overall costs and close this 2017 gap in the agricultural sector. Further, it is notable that this needs assessment does substantially build the program capacity in the agricultural sector by 2017 that will be needed to meet the 2025 WIP implementation levels. As such, we do not anticipate the need to turn to any of the agricultural contingency actions identified in the WIPs (Phase I WIP page 60 and Phase II WIP page 21). However, if these factors do not materialize to the point of accommodating for the shortfall, the TMDL process developed by EPA requires an assessment of the success of pollution reduction activities and the development of the Phase III WIP to make adjustments in the plan in 2017 as well as an upgrade of the current model. It should be noted that the approach used in this assessment was not a consensus recommendation of the stakeholders DCR consulted with during this process.

It also is important to note that the funding needs projections in this chapter focus on State costs, but implementation usually also requires some producer funding. Implementation assumes farmer demand for BMPs is very strong, SWCDs have the capacity to assist farmers in implementing those BMPs, and that state and/or federal funds are available for cost-share. It is not possible at this time to predict the degree of farmer demand that would result from funding the program at these levels. It is difficult to predict whether farmers would actually be willing to sign-up and install this very high level of BMPs. Until the demand is tested at significantly higher levels of available funding, no data exists to analyze the demand curve for BMPs or the capacity to implement at a greater level of funding supply. A rational course of action by the Commonwealth could be to test farmer demand for BMP funds by appropriating more funding than historically has been provided, but initially not to the magnitude identified. If farmers utilize all the funding, upward adjustments to funding projections could be made in future years. Any voluntary reporting of BMPs by producers that have not received cost-share will reduce the state funding needs identified in this report and needs to be carefully evaluated in the future.

Given the federal mandate of the Chesapeake Bay TMDL and President Obama's related Executive Order on its restoration, it is imperative that the federal government contribute to the very significant funding required to implement agricultural best management practices at high levels on a widespread basis. The burden should not rest solely with the jurisdictions. The tables above assume federal agriculture programs directly cover 25 percent of the total agricultural implementation costs. This assumption is particularly notable given the uncertainties associated with recent actions regarding renewal of the federal Farm Bill and the reduction in funding for Chesapeake Bay programs.

Recommended Funding Levels

The cost estimates above do not account for any benefit from tracking of voluntarily installed practices, technological improvements, program efficiency enhancements, or other strategies, all of which have the

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potential to reduce costs. Further, it seems unlikely that the federal funding needed to support a broad expansion of implementation effort will be available in the near term.

Based on these factors and the fiscal realities of the Commonwealth, DCR recommends District funding levels for 2015 of \$41.0 million. This funding includes surplus funds and recordation fees deposited in the VNRCF and general funds. It does not include amounts recommended for CREP funding and other WQIF specified line items totaling \$1.15 million. The recommended funding breakdown includes:

- Cost-Share program funding - \$29.7million
- District Technical Assistance - \$3.0 million
- District Financial Assistance - \$8.3 million

Chapter 3 - Chesapeake Bay and Virginia Waters Clean-up Plan Report

This chapter is submitted to fulfill the progress reporting requirements of § 62.1-44.117 and 62.1-44.118 of the *Code of Virginia* which calls on the Secretary of Natural Resources to plan for the cleanup of the Chesapeake Bay and Virginia's waters designated as impaired by the U.S. Environmental Protection Agency (EPA). This chapter also includes information necessary to report annually to EPA relative to the Commonwealth's §319 Nonpoint Source Pollution implementation grant. This progress report is organized to report the status of implementation of goals and objectives contained within the Chesapeake Bay and Virginia Waters Clean-up Plan. As such, it contains the detailed goals and objectives within each subsection, but in the interest of readability and conciseness, it does not repeat the detailed strategies and background information that can be found in the original Chesapeake Bay and Virginia Waters Clean-up Plan.

GOAL: Wastewater dischargers of nutrient pollution into the Chesapeake Bay watershed

- Objective: By January 1, 2011, upgrade sufficient wastewater treatment facilities to meet the Commonwealth's nutrient reduction goal for point sources

2013 Progress Report:

Under the Chesapeake Bay Watershed General Permit, the compliance period for the point source nitrogen and phosphorus waste load allocations in the Bay watershed ended December 31, 2011. These projects reduced the nutrient load delivered to the Bay and tidal rivers by approximately 2.7 million pounds of nitrogen and 126,000 pounds of phosphorus compared to the 2009 loads. As part of the Chesapeake Bay TMDL process, Virginia has now reissued the Chesapeake Bay Watershed general permit which proposes further nutrient reductions for significant dischargers in the York basin (phosphorus) and James basin (nitrogen and phosphorus) according to the schedule contained in Appendix X of the Chesapeake Bay TMDL. In all basins, with the exception of the James, wastewater facilities remain below the waste load allocations contained in the Chesapeake Bay TMDL. The Commonwealth exceeded its 2011 milestone by over 2000% and is on track to meet the 2017 goals of the TMDL.

GOAL: Discharges of toxic substances

- Performance Measurement: Report semi-annually on TMDL clean-up plan development and implementation or waters impacted by toxic contamination.

2013 Progress Report:

Bluestone: West Virginia plans to join Virginia in the development of an interstate PCB TMDL for the Bluestone River. The Virginia portion of the watershed has impairments for PCBs in fish and the water column. High PCB concentrations in the water column found during Virginia and West Virginia's collaborative TMDL data acquisition phase triggered an EPA study and a cleanup effort. A former Superfund site, Lin Electric facility, was remediated for extremely high levels of PCBs in sediment/sludge. The EPA Superfund program has been conducting additional PCB monitoring in both states (see USEPA Final Analytical Report dated May 11, 2012). The report results indicate that the

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Beaver Pond Creek tributary has the highest remaining contamination level. One former cleanup site within the drainage area to Beaver Pond Creek tributary, near Washington Street, Bluefield, West Virginia, has been disturbed, and follow-up monitoring and evaluation by EPA is in progress.

Elizabeth/tidal James River: PCB source investigation work is on-going in these water bodies. As part of TMDL development, PCB point source monitoring was requested from those VPDES permits identified as possible contributors to fish impairments. Efforts are continuing to more accurately account for regulated stormwater inputs. Also, the fish tissue dataset was updated during the summer 2012 and additional ambient water samples were collected during the spring of 2013. The additional datasets will enhance development of the TMDL, which is scheduled to be completed in 2015.

Roanoke (Staunton): This TMDL was completed in early 2010. The Roanoke TMDL monitoring identified two significant PCB sources. TMDL implementation has continued and includes monitoring requirements for an extensive list of VPDES permits. Pollutant Minimization Plans have been submitted to DEQ from the known active point sources and will be required for newly identified facilities that discharge unsafe levels of PCBs.

Levisa Fork: This TMDL was completed in April 2010. Since TMDL monitoring has not revealed a viable source(s) of the contaminant, this particular TMDL was submitted to EPA as a phased TMDL. The Virginia Department of Mines, Minerals and Energy is overseeing the completion of the phased TMDL, part of which includes completion of the EPA approved monitoring plan.

New River: The upper New River and Claytor Lake have been added to the project which previously consisted of the lower New River below Claytor Lake dam. PCB source identification has been on-going since 2010. Several iterations of ambient river water PCB monitoring have been performed while monitoring requirements for VPDES permits is on-going. Fish tissue samples were collected during the summer/fall of 2012 to provide a current dataset that will assist with TMDL development. Remediation of a PCB contaminated site located on Peak Creek, which is a major tributary to the impairment, is nearly complete. Of note, TMDL guidelines were followed by EPA and DEQ for PCB clean-up. The TMDL is targeted for completion in 2014-2015.

North Fork Holston River: This TMDL was completed in 2011. A fish consumption advisory for mercury extends approximately 81 miles from Saltville, Virginia to the Tennessee state line. While most of the river mercury originated from the Olin plant site, this contaminant has been distributed throughout the floodplain downstream. The TMDL identified that most of the current mercury loadings come from the watershed and floodplain with lesser amounts from the former plant site. In order to meet the TMDL loadings, mercury reductions will be needed from all contributors.

South and Shenandoah Rivers: This TMDL was completed in 2010. The South River has a fish consumption advisory that extends about 150 miles from Waynesboro to the West Virginia state line via the South River, the South Fork Shenandoah River, and the mainstem Shenandoah River. The primary source of mercury deposited in the river and floodplain was from releases that occurred during the 21 years that DuPont used mercury at the facility (1929-1950) in Waynesboro. Atmospheric deposition was not identified as a significant mercury source. Fish tissue from a reference site upstream of the former DuPont plant site show safe mercury levels while fish tissue below the plant contain elevated amounts of mercury. Unfortunately, mercury levels in fish tissue from this portion of the river have not shown a decline since the mercury was discovered in the river in 1976. Remediation and restoration efforts

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continue through DEQ's TMDL and federal Resource Conservation and Recovery Act and Natural Resource Damage Assessment regulatory programs, and a significant nonregulatory science-based initiative through the South River Science Team has been in place since 2000.

GOAL: Discharges from boats

- Performance Measurement: Report semi-annually on outreach efforts and No Discharge Zone (NDZ) designations being pursued.

2013 Progress Report:

DEQ has completed four NDZ applications for Virginia's Northern Neck (the peninsula of land separating the tidal Potomac and Rappahannock Rivers). The bodies of water affected by these applications are contained in 22 bacteria TMDLs, covering over 90 individual shellfish impairments. DEQ has recently validated impairments reported in the applications with shellfish impairments reported by the Department of Health's Division of Shellfish Sanitation as of December 31, 2012. Three other NDZ initiatives are in progress. The Go-Green Committee of Gloucester County is working with the Virginia Institute of Marine Science to develop NDZ applications for the Sarah and Perrin Creeks in Gloucester County. The Elizabeth River Project, an independent non-profit organization, has committed to creating a task force to achieve increased pump-out compliance by addressing education and accessibility issues. An NDZ application for Owl Creek and Rudee Inlet in Virginia Beach is currently in abeyance at EPA. Completion of the construction of a year-round pump-out station accessible to all boats is scheduled for February 2014 after which EPA will be asked to review the NDZ application for affirmative determination.

GOAL: Failing On-site septic systems and illegal straight pipe (untreated) discharges

- Objective: Encourage nitrogen-reducing treatment units in the repair of failing on-site sewage systems and in new systems. Continue to identify and replace straight pipe discharges with approved on-site sewage systems.
 - Performance Measurement: Report semi-annually on the number of failing systems or straight pipes that have been repaired.

2013 Progress Report:

The Virginia Department of Health (VDH) database, the Virginia Environmental Information System (VENIS), is the main record keeping tool for all VDH environmental health programs. The database includes records of onsite sewage disposal system repair permits. For the fiscal year beginning July 1, 2012, through June 30, 2013, a total of 2,323 repair permits were issued statewide. About 200 of those repairs involved the installation of an alternative onsite sewage system. Repair permits are issued for basic items such as replacing septic tanks and distribution boxes, but also include complete system replacement such as installing wastewater treatment systems and pressure dosed drip dispersal systems. Repairs are required to comply to the greatest extent possible with existing regulations. On December 7, 2011, the Regulations for Alternative Onsite Sewage Systems (12 VAC 5-613) were adopted. These regulations require that all new alternative onsite sewage systems applying for construction permits after December 7, 2013, reduce nitrogen by 50% as compared to a conventional onsite sewage system. Repairs

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of failing systems that require the installation of an alternative onsite sewage system based on site conditions will have to comply with this regulation.

VDH has revised its VENIS database and reporting policies to capture additional information regarding onsite sewage disposal systems. The changes will allow VDH, going forward, to report the number of straight- pipes and failing sewage disposal systems that are replaced and the number of new and repaired systems that incorporate nitrogen-reducing technology. The database is also being modified to identify BMPs for onsite systems that are recognized by the Chesapeake Bay Model. Currently that effort is limited to identifying 50% nutrient reducing rated units installed in the watershed. Virginia participated in the multi-state workgroup that has proposed new BMPs for the onsite sector. As new BMPs are adopted, any necessary modifications will be made to the database in order to track the new BMPs and facilitate reporting.

The report for fiscal year 2013 is being prepared now and will be reported by December 31, 2013. Last year, VDH applied for and received a Chesapeake Bay Innovative Nutrient and Sediment grant through the National Fish and Wildlife Foundation for \$750,000 to initiate a cost share program in the Three Rivers Health District. The program is targeted to owners who received waivers pursuant to a state law that allows them to repair their systems without including mandated treatment and/or pressure dosing requirements. Systems repaired in this manner are compliant with regulatory requirements until the property is transferred. Because these systems have failed already and because the site and soil conditions would normally require advanced sewage treatment or pressure dosing, it is likely these facilities are releasing nutrients and pathogenic organisms into groundwater and the Bay watershed at rates higher than normal conventional and alternative onsite systems. The risk that these systems may fail again also is high. Economics is the number one reason owners elect to receive these waivers. This grant will provide a 50% cost share for owners who elect to upgrade. This grant will add nutrient reduction systems or provide for connection to sewer for up to 91 systems for a total reduction of 1,180 lbs of nitrogen per year. That loan program is in development and potential participants are being contacted.

2013 Progress Report: DCR Grant funding for repairing/replacing failing on-site septic systems and straight-pipes

DCR continues to work with organizations and localities across Virginia to fund projects that correct failing septic systems or straight-pipes. A majority of these projects are part of larger watershed restoration and implementation efforts in TMDL implementation areas. Other projects were initiated through various RFPs. During FY13, DCR provided funding to pump-out septic systems, repair or replace failing septic systems or remove straight pipes from at least 447 homes through \$356,492 of funds from Federal Section 319(h) funding and the Water Quality Improvement Fund (WQIF) NPS Request for Proposals.

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**Residential Septic Program - Grant Funded BMPs
7/1/2012-6/30/2013**

Name of BMP	BMP Practice Code	Number of BMPs	Pounds of Nitrogen Reduced	CFU of Bacteria Reduced	Total Amount of Cost-share Provide	Total Amount of Match
Septic Tank Pump-out	RB-1	305	860	1.529E+12	\$ 43,115	\$ 46,120
Connection to Public Sewer	RB-2	1	31	4.98E+10	\$ 4,500	\$ 4,662
Septic Tank Repair	RB-3	79	1,826	2.947E+12	\$ 73,847	\$ 72,845
Septic Tank Replacement/Installation	RB-4	46	1,063	1.716E+12	\$ 132,916	\$ 100,075
Septic Tank Replacement or Installation w/ pump	RB-4P	10	231	3.73E+11	\$ 44,865	\$ 59,694
Alternative Septic System	RB-5	6	139	2.238E+11	\$ 57,250	\$ 80,957
Total Installed		447		6.838E+12	\$ 356,492	\$ 364,353

**Distribution of DCR Funded Residential Septic Projects by County
7/1/2012-6/30/2013**

Name of County	RB-1	RB-2	RB-3	RB-4	RB-4P	RB-5	Total
Bedford	0	0	4	4	1	0	9
Bedford City	0	1	0	0	0	0	1
Botetourt	3	0	1	2	0	1	7
Buckingham	13	0	2	3	0	2	20
Campbell	0	0	1	1	1	1	4
Culpeper	9	0	3	1	0	0	13
Cumberland	1	0	0	0	0	0	1
Fauquier	49	0	22	3	3	0	77
Franklin	0	0	2	14	2	0	18
Madison	101	0	9	5	2	2	119
Orange	8	0	1	4	1	0	14
Page	78	0	23	4	0	0	105
Pittsylvania	0	0	0	1	0	0	1
Rappahannock	14	0	7	4	0	0	25
Rockingham	16	0	3	0	0	0	19
Shenandoah	13	0	1	0	0	0	14
TOTAL	305	1	79	46	10	6	447

The grant funds distributed by DCR that were active in FY13 were mainly to Soil and Water Conservation Districts who administered residential on-site septic system programs, usually associated with TMDL implementation projects.

**DCR Sponsored Residential Septic BMPs:
Funding and pollution reductions July 1, 2012 thru June 30, 2013**

Soil and Water Conservation District	Name of County	# of BMPs	\$ Funds provided by DCR	Match \$	Bacteria Reductions CFU	Nitrogen Reductions Lbs/Year
BLUE RIDGE	Franklin	18	\$ 44,623	\$ 45,161	6.71E+11	416
CULPEPER	Culpeper	13	\$ 6,707	\$ 4,612	1.94E+11	118
	Madison	119	\$ 63,859	\$ 86,771	1.17E+12	699
	Orange	14	\$ 19,188	\$ 19,488	2.64E+11	161
	Rappahannock	25	\$ 23,786	\$ 16,530	4.80E+11	293
JOHN MARSHALL	Fauquier	77	\$ 49,884	\$ 57,326	1.29E+12	784
MOUNTAIN CASTLES	Botetourt	7	\$ 17,652	\$ 24,700	1.69E+11	104
PEAKS OF OTTER	Bedford	9	\$ 28,912	\$ 28,537	3.36E+11	208
	Bedford City	1	\$ 4,500	\$ 4,662	4.98E+10	31
	Campbell	1	\$ 2,250	\$ 1,957	3.73E+10	23
PETER FRANCISCO	Buckingham	20	\$ 27,343	\$ 22,508	3.31E+11	201
	Cumberland	1	\$ 138	\$ 138	4.98E+09	3
PITTSYLVANIA	Pittsylvania	1	\$ 1,500	\$ 1,500	3.73E+10	23
ROBERT E LEE	Campbell	3	\$ 22,040	\$ 22,680	1.12E+11	69
SHENANDOAH VALLEY	Page	105	\$ 38,288	\$ 38,323	1.40E+12	842
	Rockingham	19	\$ 3,834	\$ 3,959	1.92E+11	114
	Shenandoah	14	\$ 1,990	\$ 2,140	1.02E+11	60
TOTAL		447	\$ 356,492	\$ 380,990	6.84E+12	4,149

GOAL: Widespread adoption of cost-effective agricultural best management practices ("Priority Practices")

- Objective: Implement to the maximum extent practicable, the five priority agricultural best management practices (BMPs) and other effective BMPs to significantly advance the Commonwealth's nutrient and sediment pollution reduction goals by 2025 and beyond.
 - Performance Measurement: Pounds of nitrogen and phosphorus reduced through the implementation of priority practices

2013 Progress Report: Agricultural Cost-Share Programs

DCR emphasized a suite of priority practices from 2006 through 2012. These practices were identified by the Chesapeake Bay Commission as providing cost effective nutrient and sediment reductions within the Chesapeake Bay drainage basin. These priority practices include nutrient management, cover crops, conservation tillage, livestock exclusion from streams, and the establishment of vegetative riparian buffers. These five suites of BMPs are still identified in the guidance given to Soil and Water

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Conservation Districts as priority practices; however DCR no longer requires Districts to obligate 80% of their cost-share allocation funding these practices.

DCR administers funds for conservation programs that Soil and Water Conservation Districts deliver to the agricultural community. Some of these programs include the Virginia Agricultural Best Management Practices Cost-Share and Tax Credit Programs, State and federally funded agricultural TMDL Implementation, the Conservation Reserve Enhancement Program, and Virginia Enhanced Conservation Initiative. Through funding provided by the General Assembly, Virginia has developed a computerized BMP tracking program to record the implementation and financial data associated with all implemented practices. This program continues to be maintained by DCR. Additional funding is needed to expand this system to account for the recently passed Resource Management Plans and voluntarily installed practices, as indicated in the report on voluntary BMP tracking completed in 2011.

2013 Progress Report: Agricultural Stewardship Act Program

The Agricultural Stewardship Act (ASA) Program is a complaint based program by which the Commissioner of Agriculture and Consumer Services receives complaints alleging water pollution from agricultural activities. During the program year April 1, 2012, through March 31, 2013, VDACS received more than 100 inquiries regarding possible agricultural pollution, of which 48 cases became official complaints. The official complaints fell into 11 categories according to the type of agricultural activity: beef (12), equine (12), land conversion (11), dairy (3), cropland (3), swine (2), llama (1), slaughter (1), swine/equine/llama (1), beef/equine (1), and poultry (1). There were also six different categories of the types of alleged pollution: sediment and nutrient (38%); sediment only (31%); nutrient only (25%); sediment, nutrient, and toxins (2%); sediment and toxins (2%); nutrient and toxins (2%).

In most cases, the ASA staff, together with local Soil and Water Conservation District staff, investigated the official complaints received. During the program year, 15 (31%) of the 48 official complaints were determined to be founded, and Agricultural Stewardship Plans were required to address pollution problems. In each founded case, there was sufficient evidence to support the allegations that the agricultural activities were causing or would cause pollution.

Twenty-three (48%) of the complaints received during the program year were determined to be unfounded because there was insufficient or no evidence of water pollution, or the alleged problem was already corrected by the time of the investigation. In some instances, farmers involved in unfounded complaints voluntarily incorporated best management practices into their operations to prevent more complaints or to prevent potential problems from becoming founded complaints.

Ten (21%) of the complaints received during the program year were dismissed for various reasons. Many of the complaints that were dismissed were situations where a water quality concern existed but was remedied prior to the official investigation. Others were issues in which the ASA program had no jurisdiction in the matter. On two occasions complaints were dismissed because sufficient information was not provided in the complaint to give the Commissioner reason to investigate.

In general, farmers involved in the complaint and correction process were cooperative in meeting the deadlines set by the ASA, and it was not necessary to assess any civil penalties. Under the ASA, the Commissioner issues a corrective order when an owner/operator fails to complete implementation of the

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Agricultural Stewardship Plan based on the findings of a conference held to receive the facts on a case. No corrective orders were issued in 2012-2013.

There was an appeal of the Commissioner's decision to approve an ASA plan during the 2012-2013 program year. In that particular case, the Soil and Water Conservation Board upheld the Commissioner's decision to approve the plan as adequate to prevent water pollution from occurring.

GOAL: Protect surface water resources through the implementation of silvicultural regulation and Department of Forestry programs

- Objective: Enforce Virginia's Silvicultural Water Quality Law through implementation of best management practices (BMPs) to protect water quality and enhance watershed protection.
 - Provide incentives to logging contractors to properly install best management practices (BMPs)
 - Continue with providing landowner cost-share assistance for establishment of Riparian Forest Buffers utilizing Conservation Reserve Enhancement Program (CREP) funds

2013 Progress Report: Virginia Department of Forestry

Water Quality Protection:

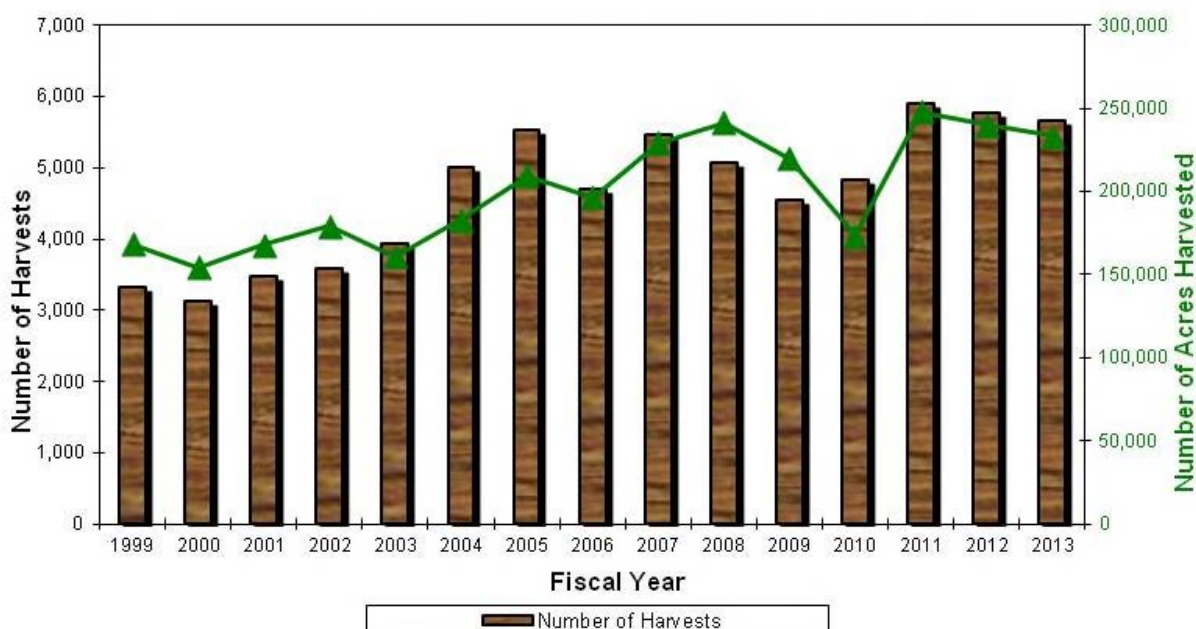
Water quality is important to all Virginians. Studies have shown that the cleanest water comes from forested watersheds. These watersheds are critical sources of pure drinking water; habitat for important fisheries, and areas that are treasured for their recreational value and purity of life. This is especially important when considering the Total Maximum Daily Load (TMDL) and Watershed Implementation Plan (WIP) that have been developed for the Chesapeake Bay. Two of the Department of Forestry's important measures involve water quality. One focuses on Best Management Practices on forest harvesting operations and protecting streams from sediment. The other focuses on improving and protecting watersheds through management and land conservation.

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The Virginia Department of Forestry has been involved with the protection of our forested watersheds since the early 1970s with the development of our first set of Forestry Best Management Practices (BMPs) for Water Quality. The Department utilizes the fifth edition of those guidelines, which came out in 2011. The backbone for the Department's water quality effort is the harvest inspection program, which began in the mid-'80s. This program has provided for one-on-one contact between VDOF and the harvest operators and a welcomed opportunity to educate the operators on BMPs and the latest in water quality protection techniques. In FY13, VDOF field personnel inspected 5,658 timber harvest sites across Virginia on 233,714 acres – a marginally slight decrease in the number of acres harvested over FY12.

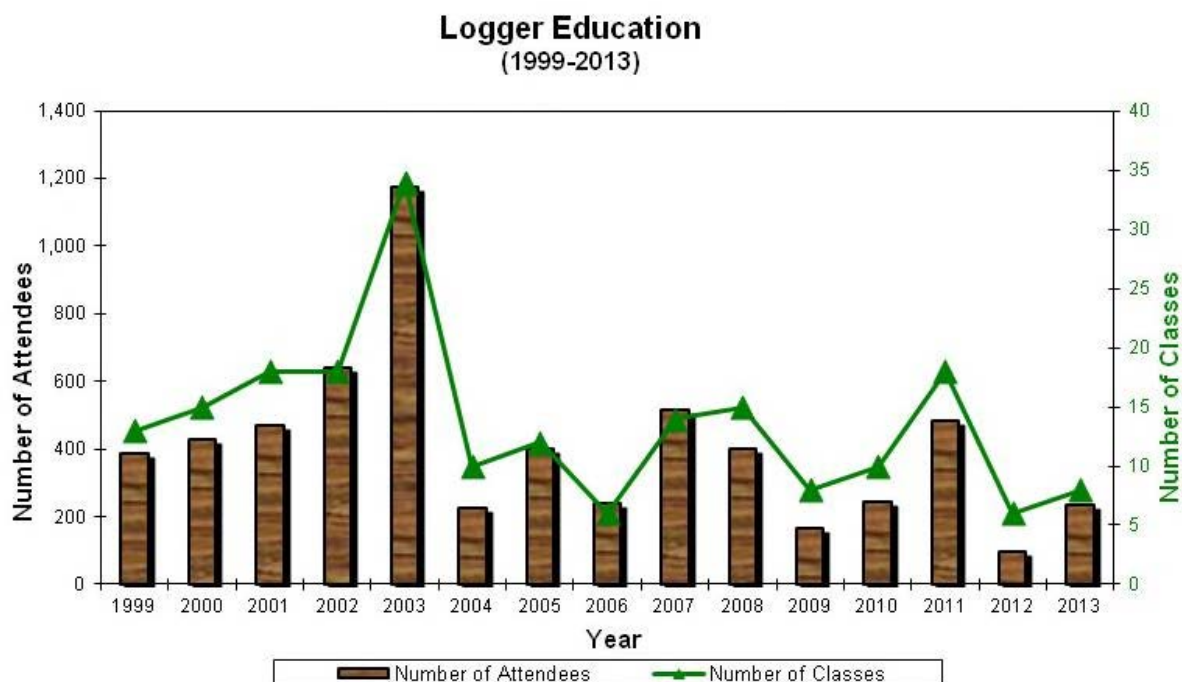
Another main focus of the VDOF water quality program is logger education. Since the development of

**Timber Harvests in Virginia
(1999-2013)**



the first BMP Manual for Virginia, the VDOF has been involved in the training of harvesting contractors in water quality protection techniques ranging from harvest planning, map reading and the use of GPS units to BMP implementation. This occurred through training that the agency sponsored and, more recently, through VDOF participation in the SFI® SHARP (Sustainable Harvesting and Resource Professional) Logger Training Program. Since 1997, this program has enabled VDOF to assist in training 7,135 harvesting professionals in 229 programs relating to water quality protection. For FY13, there were 8 training programs offered with a total of 233 present. Six of these courses were in the core area (202 attendees), and the remaining 2 courses were for logger continuing education (31 attendees).

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In addition, the VDOF conducted a Gravel Road Workshop to educate 36 professionals from across the state on proper construction and maintenance techniques for gravel logging roads to reduce the impact of these roads on water quality. The VDOF also promoted water quality protection and BMPs at the Southeast Virginia 2013 Logging Expo in Franklin, Virginia. This Exposition is designed to interest possible new timber harvesters in getting started in the harvesting business (approximately 400 attendees were present to receive the BMP message).

In July 1993, the General Assembly, with the support of the forest industry, enacted the Virginia Silvicultural Water Quality Law, §10-1-1181.1 through §10.1-1181.7 of the *Code of Virginia*. This law grants the authority to the State Forester to assess civil penalties to those owners and operators who fail to protect water quality on their forestry operations. Virginia continues to be the only state in the southeastern United States that grants enforcement authority under such a law to the state's forestry agency. In FY13, the VDOF was involved with 229 water quality actions initiated under the Silvicultural Law. This is a slight increase of 14 percent from FY12. Of these actions, 3 resulted in Special Orders being issued for violations of the law, and one involved the issuance of an Emergency Special Order (Stop Work Order). None of these actions proceeded to the issuance of a civil penalty.

A statewide audit system has been in place since 1993 to track trends in BMP implementation and effectiveness. Results from the calendar year 2012 data show that overall BMP implementation on 240 randomly selected tracts is 89.8 percent – an increase of 4.3 percentage points over the previous audit cycle. The audit results also show that 100 percent of the sites visited had no active sedimentation present after the close-out of the operation. The information compiled using this audit process will be the basis of reporting for the Chesapeake Bay WIP. Since the information is captured through GIS technology, this information can be compiled spatially for reporting on those forestry operations that occur within the boundaries of the Bay watershed. For calendar year 2012, the BMP implementation rate tract average for forest harvesting within the Bay Watershed was 91 percent and the average of all BMPs across all tracts

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within the Bay Watershed was 90 percent. This whole BMP Implementation Monitoring effort has been automated over the past several years to be compatible with VDOF's enterprise database system known as IFRIS (Integrated Forest Resource Information System).

VDOF offers cost-share assistance to timber harvest operators through a unique program offered through the utilization of funding from the Commonwealth's Water Quality Improvement Fund. This unique program shares the cost of the installation of forestry BMPs on timber harvest sites by harvest contractors. Unfortunately, the program was unfunded for FY13.

Watershed Protection:

Because forests provide the best protection for watersheds, one of VDOF's goals is to increase the amount of forestland conserved, protected and established in Virginia's watersheds. The focus is on practices that will have a high benefit to water quality, specifically conserving land permanently; establishing and maintaining riparian buffer zones; planting trees on non-forested open land, and increasing urban forest canopy by planting trees. All of these activities are closely related to meeting water quality goals associated with the Chesapeake Bay restoration and watersheds for Virginia's southern rivers.

Virginia's Forestry BMPs that address harvesting have been highly successful. One of the most valuable BMPs for water quality is the uncut or partially cut streamside management zone. This voluntary measure assures an unbroken forest groundcover near the stream as well as shade for the water and wildlife corridors. Landowners can elect to receive a state tax credit for a portion of the value of the uncut trees in the buffer. By doing so, they agree to leave the buffer undisturbed for 15 years. The number of landowners electing this option in Tax Year 2012 was 39, a 25% increase over the previous year. This watershed protection option provided a tax credit of \$230,476.01 on timber valued at \$1,003,735.41 that was retained in the streamside areas of the landowners' property.

Forests provide superior watershed benefits over nearly every other land use. Because of this, VDOF is encouraging planting of open land with trees; establishing new riparian forested buffers where none previously existed, and providing protection of existing riparian forests through a tax credit. In the 2013 season, trees were established or protected on 3,199 acres of land.

GOAL: Implement nutrient management on lands receiving poultry litter

- Objective: Revise the current poultry litter management program to assure that all land application of poultry litter will be in accordance with prescribed nutrient management planning practices.
 - Performance Measurement: Number of acres of nutrient management plans written and implemented and tons of litter and nutrients transferred

2013 Progress Report:

In the past 12 months, DCR nutrient management specialists prepared nutrient management plans on 85,374 new acres and 93,351 of revised acreage. Currently, there is 795,000 acres inside the Bay watershed with nutrient management and around 1,000,000 acres state wide. As indicated in the

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following table, private nutrient management planners have developed or revised over 100,000 acres of additional nutrient management plans state wide.

Private Nutrient Management Planning					
New or Revised	Sum Of Cropland	Sum Of Hayland	Sum Of Pasture	Sum Of Specialty	Total
New	43574	17788	11030	653	73045
Revised	23183	5819	5020	0	34022

DCR shipped approximately 2,766 tons of litter outside the Bay watershed. DCR is currently working with poultry integrators to implement new contracts for integrators that have not achieved phosphorous reductions through the use of phytase in feed. The two largest producers have met and exceeded their 30 % reduction goals.

GOAL: Implementation and compliance of erosion and sediment control programs state wide

- Objective: By the end of 2010, 90% of the 164 local erosion and sediment programs will be consistent with the requirements of the Virginia Erosion and Sediment Control Law.
 - Performance Measurement: Number of local program reviews completed annually and percentage of programs reviewed in compliance with state standards.

2013 Progress Report:

From July 2011 through June 2013, the DCR regional offices performed 30 local erosion and sediment control program reviews. The results of these program reviews were that 14 programs were found consistent and 16 programs were found inconsistent. At the end of fiscal year 2013, of the 164 local erosion and sediment control programs in Virginia, 149 (90.9%) were found by the Soil and Water Conservation Board to be fully consistent with the Virginia Erosion and Sediment Control Law and Regulations. On July 1, 2013, this program transferred to DEQ and the State Water Control Board.

GOAL: Implement revised stormwater management program

- Objective: Complete the revision of Virginia's stormwater management regulations and implement the regulations statewide with maximum local government adoption by July 1, 2014
- Performance Measurement: Prior to July 1, 2014, progress will be tracked through milestones in program development. Upon completion of the regulatory revision process, progress will be tracked semi-annually through future revisions to the clean-up plan as follows:
 - Number of localities meeting milestones
 - Number of localities with a Board approved stormwater program
 - Number of construction sites that require the stormwater general permit that have obtained permit coverage
 - Number of DCR and locality inspections of permitted sites

2013 Progress Report:

During the reporting period, the program began a significant effort of outreach to the local governments.

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This included visits with each local government impacted by the regulations as well as numerous training and education opportunities. A Stormwater Local Advisory Committee, consisting of local government representatives to provide input to the associated tools being developed by DCR for local stormwater program use held meetings over the course of the year. This includes the development of an electronic permitting system which will coordinate local stormwater program activities with issuance of VSMP permit coverage. Until such time that local stormwater management programs are in place and functioning, DCR/DEQ continues to receive VSMP registration statements and issue VSMP permit coverage, as well as, conducts compliance inspections to ensure permit compliance. During the reporting period, DCR/DEQ issued coverage under the General Permit for Stormwater Discharges from Construction Activities. In the latter half of the year, a significant increase in permit coverage applications resulted in a doubling of permit issuance compared to 2012. DCR/DEQ staff visited small and large construction sites to conduct inspections. On July 1, 2013, this program transferred from DCR to DEQ.

GOAL: Fully achieve local government compliance with septic maintenance and pump-out requirements and BMP monitoring and inspection requirements of the Chesapeake Bay Preservation Act

- Objective: Achieve 100% compliance by Tidewater localities with septic pump-out requirements of the Chesapeake Bay Preservation Act by 2010—This objective has been achieved.
- Objective: Achieve 100% compliance by Tidewater localities with the urban best management practice (BMP) maintenance requirements of the Chesapeake Bay Preservation Act by 2010. – This objective has been achieved
- Objective: Establish voluntary septic tank pump-out maintenance programs in localities outside the Chesapeake Bay Preservation Act area, both within the Chesapeake Bay Watershed and Southern Rivers portion of the Commonwealth
 - Performance Measurement:
 - Number of localities in compliance with local septic pump-out programs
 - Number of localities in compliance with BMP maintenance requirements
 - Number of systems pumped with estimated resulting nutrient reductions
 - Numbers of BMPs installed along with pollutants removed and acres treated

2013 Progress Report:

As of September 2013, reviews have been completed for 64 of the 84 Bay Act localities. Phase III of local government implementation of the Chesapeake Bay Preservation Act Regulations (Regulations) requires the 84 Tidewater local governments to review local land development ordinances, and revise them if necessary, in order to ensure these ordinances adequately manage the protection of the quality of state waters. An important element of Phase III is the requirement for local ordinances to have specific standards to ensure that development in Chesapeake Bay Preservation Areas minimizes land disturbance, preserves indigenous vegetation, and minimizes impervious cover, as well as six specific requirements for approved plats and development plans. Phase III also involves the identification and resolution of obstacles and conflicts to achieving the water quality goals of the Chesapeake Bay Preservation Act within local programs and ordinances. This program was moved to DEQ on July 1, 2013. Although level of accomplishment achieved by the local code changes cannot yet be quantified, progress has been made in this area.

GOAL: Reduce water quality impacts associated with former resource extraction activities by proper site planning and best management practice implementation.

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- Objective: Reduce erosion on abandoned or orphaned mined land. Include water quality goals in prioritization of areas for reclamation activities.

2013 Progress Report:

The Department of Mines Minerals and Energy (DMME) regulates resource extraction through three divisions. Each division has a program that through a mix of regulatory, financial and technical assistance addresses nonpoint source pollution from abandoned and orphaned sites. The Division of Mined Land Reclamation oversees the Abandoned Mine Land Program which assists with the reclamation of abandoned coal mines. The Division of Mineral Mining manages the Orphaned Land Program to address unreclaimed mineral mines. The Division of Gas and Oil administers the Oil and Gas Orphaned Well Fund. To date, DMME has identified approximately 57,760 acres of abandoned coal mined land and another 10,000 acres of orphaned mineral mined land. DMME has sealed 229 mine shafts, 1,302 tunnel/portals and approximately 20 oil and gas wells. At a cost of \$113,862,257, DMME has completed the reclamation of 20,540 acres of disturbed land. In FY13, DMME sealed 4 mine shafts, 21 portals and 4 gas wells. At a cost of \$4.5 million, DMME completed reclamation of 247 acres of disturbed mine land in 2013.

GOAL: Chesapeake Bay Total Maximum Daily Load report and implementation plan development

- Objective: Work with EPA Chesapeake Bay Program and program partners to establish the Chesapeake Bay TMDL and State Watershed Implementation Plan.

2013 Progress Report:

Virginia's water quality agencies developed Virginia's interim Phase II Chesapeake Bay Watershed Implementation Plan (WIP). The Secretary of Natural Resources submitted the plan to EPA in accordance with the established completion deadline of March 30, 2012. The Phase II WIP has been accepted by EPA and was determined to be sufficient to meet the nutrient and sediment reductions. In January 2012 Virginia submitted interim two-year Milestones covering the period 2012-2013. The milestones provide further specifics on intended actions and strategies to be accomplished in the period.

A review of the progress through 2012 in achieving the milestones for the period 2012-2013 found that Virginia's efforts to control nutrients and sediments had exceeded the goals. This success was largely due to improvements to wastewater treatment plants that continue to operate below the design discharge volumes. These efforts were complicated by continuing concerns related to the adequacy of the Chesapeake Bay Watershed Model. State water quality agencies and the Secretary of Natural Resources are continuing efforts to work with EPA to resolve these modeling concerns.

As called for in the Phase II WIP and the 2012-2013 Milestones, regulations for Resource Management Plans for agriculture have been developed and approved, regulations called for by the General Assembly that update and expand the Nutrient Credit programs in Virginia are under development, and the study of chlorophyll a water quality standard in the James River is also underway.

For additional information on the Chesapeake Bay TMDL and associated efforts please visit:
<http://www.deq.virginia.gov/Programs/Water/ChesapeakeBay/ChesapeakeBayTMDL.aspx>

GOAL: Development of Total Maximum Daily Load reports, implementation plans, and implementation projects

- Objective: For each impaired water body a TMDL study must be conducted that identifies the maximum pollutant load allowable and the level to which each pollutant must be reduced to maintain water quality standards. The process includes: developing TMDL reports, developing TMDL implementation plans designed to reduce pollution in order to meet standards, implementation of pollution reduction strategies, and water quality monitoring.
- Performance Measurement:
 - Number of water bodies removed from the list of impaired waters.
 - Measurable improvements in waters not removed from the impaired waters list.
 - Efforts to protect healthy watersheds

2013 Progress Report: Development of Total Maximum Daily Load Reports

To meet the 1999 Consent Decree (CD) that resulted from a settlement by EPA with plaintiffs regarding enforcement of the TMDL provisions of the Clean Water Act, Virginia completed TMDLs covering approximately 225 shellfish and 375 non-shellfish CD listed impairments, and approximately 198 non-CD listed impairments. Virginia has received credit under the CD for an additional 145 delisted or re-categorized impairments. Since completing the requirements of the 1999 CD, Virginia has continued to develop approximately 50 TMDLs per year in accordance with a TMDL Development pace agreement with EPA. Virginia currently develops TMDLs using a “watershed approach” when possible. The watershed approach to TMDL development allows watersheds with similar characteristics to be combined under a single TMDL equation resulting in cost and time efficiencies. Virginia also has established a structure to batch TMDLs and Implementation Plans for even greater efficiency. Watersheds are prioritized for TMDL development based on risk, public interest, available monitoring, regional input, and available funding. TMDL development schedules are developed about every two years, and posted on Virginia’s TMDL website:

<http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLDdevelopment.aspx>.

1999 - 2013 TMDL Development Status

Year	1999 - 2010 CD TMDL	1999 - 2010 Non-CD TMDL	Post CD TMDL	Totals
2000	11	0		11
2002	24	0		24
2004	91	8		99
2006	170	36		206
2008	132	82		214
2010	172	72		244
2012			111	111
2013			54 ⁱ	54
Totals	600	198	111	963

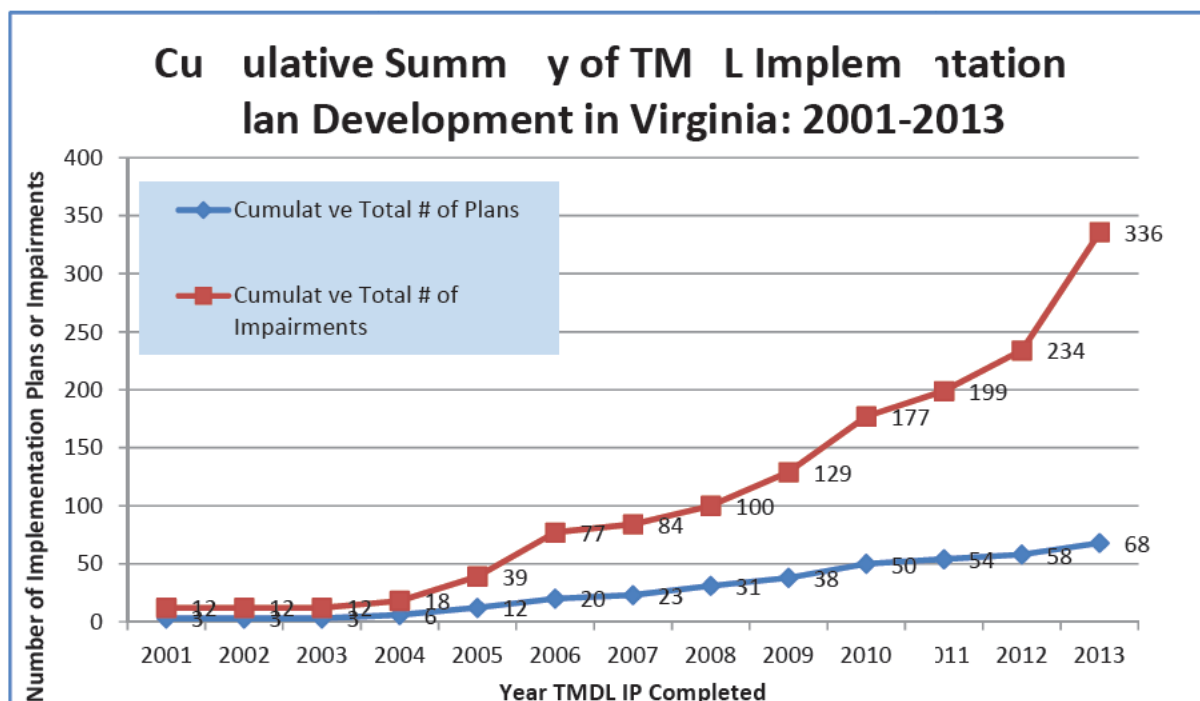
ⁱVADEQ submitted TMDLs covering 54 impaired segments in 2013. 36 of these impaired segments are pending EPA approval.

2013 Progress Report: Development of MDL Implementation Plans

Once a MDL is developed the study report is submitted to EPA for approval. Virginia law (1997 Water Quality Monitoring, Information, and Restoration Act, §62.1-41 through 49:8 of the Code of Virginia), also WQMIRA, requires the development of a MDL implementation plan after a TMDL is developed and approved. There is not a mandated schedule for implementation plan development; however local or state agencies, as well as community watershed groups, can take the lead in developing TMDL implementation plans. The implementation plan describes the measures that must be taken to reduce pollution level in the stream and includes a schedule of actions, costs, and monitoring. During its 2013 Legislative Session the General Assembly passed Chapters 756 (HB 248) and 793 (SB1279) of the 2013 Virginia Acts of Assembly which designate, effective July 1, 2013, the Virginia Department of Environmental Quality as the lead agency for nonpoint source programs in the Commonwealth of Virginia. Effective July 1, 2013 DEQ as the lead for the entire TMDL program, including implementation, for the Commonwealth of Virginia.

Virginia law requires the development of a TMDL implementation plan after a TMDL is developed and approved by EPA. The implementation plan describes the measures and timeline to meet the TMDL, and includes estimated costs, and a monitoring plan. DEQ and DCR, along with other agency and non-agency partners, continue to develop TMDL implementation plans and to execute these plans throughout Virginia. In FY13, DEQ and other partners developed 10 implementation plans covering 102 impairments. In addition, 6 implementation plans covering 71 impairments were under development in 2013, but were not completed or approved by the end of the fiscal year. Since 2001, Virginia has completed 68 implementation plans, covering 263 TMDL impaired stream segments and addressing 336 impairments. The graph below summarizes TMDL implementation plan development in Virginia since 2001 and the number of impairments covered by those plans. In the majority of cases, watersheds that have a completed implementation plan also have TMDL implementation projects underway.

Cumulative summary of TMDL Implementation Plan development



2013 Progress Report: Watershed Restoration and TMDL Implementation

The goal of the TMDL Implementation Program is to implement targeted, on-the-ground activities, identified in TMDL implementation plans, which will result in water quality improvements and subsequent delisting of impaired streams. Virginia uses a staged approach that provides opportunities for periodic evaluation of the effectiveness of the implementation actions and adjustment of efforts to achieve water quality objectives in a timely and cost-effective manner.

From January 1, 2012 through June 30, 2013 there were 29 implementation projects supported by Federal EPA §319(h) funding, state WQIF and/or state Virginia Natural Resources Conservation Fund (VNRCF). Collectively these projects spent \$1,934,136 of cost-share funds.

Virginia's TMDL Implementation Program in 2013

As of June 2013, Virginia's TMDL Implementation Program includes 16 implementation projects currently or previously funded with Federal 319(h) funds as well as some state funds, 2 projects that received one time allotments of a variety of federal, state, local and non-profit sources and 14 projects receiving state funds for agricultural implementation.

Summary of Virginia TMDL Implementation, January 2001-June 2013

Watershed Area	TMDL Segment	Status	Implementati on	Funds Used
A. Eight projects received 5-7 years of continuous funding from 319(h) administered by DCR. These projects are no longer receiving TMDL funds, but may continue to receive funding from other sources.				
Middle Fork Holston River	VAS-O05R	Moderate improvement, Success Story 2005, 2013	2001-2008	§319(h)
Upper Blackwater	LAW-L08R	Some improvement	2001-2007	§319(h)
North River	VAN-B21R, B22R, B27R, B29R	Improvement, Muddy Creek delisted for nitrate-N 2010	2001-2008	§319(h)
Holmans Creek	VAV-B45R	Some improvement	2005-2008	§319(h)
Catoctin Creek	VAN-A-02R	Some improvement	2005-2009	§319(h)
Cooks Creek and Blacks Run	VAV-B25R, B26R	Some improvement	2006-2012	§319 RFP,NFWF
Mill and Dodd Creeks	VAW-N20R, N21R	None reported	2007-2011	§319 & VNRCF
Little and Beaver Creeks	VAS-O07	None reported	2007-2012	§319, VNRCF, RFP

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Watershed Area	TMDL Segment	Status	Implementati on	Funds Used
B. Sixteen projects funded by Federal 319(h) as well as State WQIF and VNRCF administered by DCR between July 2012 and June 2013				
Big Otter River	VAW-L23R, L25R, L27R, L28R	Improvement, segment delisted 2008	2006-2012	§319, VNRCF, RFP
Lower Blackwater	VAW-L09R, L10R and L11R	Some improvement,	2006-2012	§319(h), VNRCF
Willis River	VAC-H36R	Improvement, delisted (3), Success Story 2010	2005-2013	§319(h), VNRCF
Thumb, Great, Carter and Deep Runs	VAN-E01R, E02R & E10R	Some improvement, Carter Run Success Story 2013, possible delisting	2006-2013	§319(h), VNRCF
Hawksbill and Mill Creeks	VAN-B38R, B39R	None reported	2008-2012	§319(h), VNRCF
Looney Creek	VAW-I26R	None reported	2009-2013	§319, VNRCF
Hazel River	VAN-E03R, E04R, E05R	None reported	2009-2013	§319, VNRCF, WQIF RFP
Slate River and Rock Island Creek	VAC-H1/R, H21R, H22R	Too Early	2010-2014	§319, VNRCF
Craig Run, Browns Run and Marsh Run	VAN-E08R	Too Early	2011-2014,	§319(h), VNRCF, VNCR-CBLEI
Moore's Creek	VAV-H28R	Some improvement	2012-2014 (sporadically since 2005)	§319, VNRCF, WQIF RFP
Smith Creek	VAV-1347R	Too Early	2012-2014, 2008+ NRCS	§319(h), NRCS
Guest River	VAS-P11R	None reported	2012-2014 (sporadically since 2005)	§319, VNRCF, WQIF RFP
Lewis Creek	VAS-P04R	Too Early	2012-2014	§319(h), VNRCF
Upper York River	VAN-F06R, F07R	Too Early	2012-2014	§319(h), VNRCF
Hays, Moffats, Otts, and Walker Creeks	VAN-I34R	Too Early	2012-2014	§319(h), VNRCF
Knox and Pawpaw Creek	VAS-Q03R	Too Early	2012-2014	§319(h), VNRCF
C. Two projects receiving minimal, one time funding through DCR (RFPs etc)				
Stroubles Creek	VAW-N22R	Some Improvement	2006+	WQIF RFP
Little Dark Run and Robinson River	VAN-E15R	Too early	2011	WQIF RFP, CBLEI-TMDL (WQIF)

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Watershed Area	TMDL Segment	Status	Implementation	Funds Used
D. Fourteen projects receiving WQIF/VNRCF funds for agricultural BMPs (and RFP for septic work)				
Nottoway	VASC-K14R	N/A	2005-2009	WQIF, VNRCF
Falling River	VAW-L34R	Some improvement	2007 - 2013)	WQIF, VNRCF
Mossy and Naked Creeks, Long Glade Run	VAV-B19R, B24R, B28R	Some improvement	2007 - 2013	WQIF, VNRCF
Pigg River (Blue Ridge SWCD)	VAW-L14R, L15R, L16R, L17R	Improvement	2007 - 2013	WQIF, VNRCF, RFP
Pigg River (Pittsylvania SWCD)	VAW-L13R, L17R, L18R	Some improvement	2007 - 2013	WQIF, VNRCF, RFP
Twittys and Ash Camp Creeks	VAC-L39R	Inadequate data	2007 - 2013	WQIF, VNRCF
Abrams and Opequon Creeks	VAV-B08R, B09R	N/A	2006 - 2011	WQIF, VNRCF
Cub, Turnip and Buffalo Creeks	VAC-L36R, L37R, L40R	No data	2007 - 2012	WQIF, VNRCF
Flat, Nibbs, Deep and West Creeks	VAP-J08R, L09R, J11R	Improvement, Flat Creek identified for Success Story	2007 - 2013	WQIF, VNRCF
Moffett Creek, Middle River, Polecat Draft	VAV-B10, B13, B15	Some improvement	2007 - 2013	WQIF, VNRCF
Christians Creek and South River	VAV-B14, B30	Improvement	2007 - 2013	WQIF, VNRCF
Upper Clinch River	VAS-P01R	Inadequate data	2007 - 2012	WQIF, VNRCF
Bluestone River	VAS-N36R	Some improvement	2007 - 2012	WQIF, VNRCF
Briery, Little Sandy, Spring, Saylers Creeks and Bush River	VAC-J02, J03, J04, J05 AND J06R	Some improvement	2007 - 2013	WQIF, VNRCF

Funding of Implementation

As the agency taking the lead in nonpoint TMDL watershed implementation during FY13, DCR utilizes both state funds and §319(h) funds to pay for DCR regional staff to provide project management and technical support to watershed stakeholders to implement these projects. As a match to Federal 319(h) funds, DCR provides state funds for operational support of the 47 Soil and Water Conservation Districts, which provide technical assistance with the design and installation of agricultural BMPs. In addition, Virginia runs a comprehensive cost-share program for BMP implementation utilizing both federal 319(h) grant funding, other grant funding and state resources from the Water Quality Improvement Fund and the Virginia Natural Resources Commitment Fund. A summary of targeted TMDL cost share funds spent in FY13 is provided below.

Summary of targeted TMDL cost-share funds spent on TMDL implementation: July 2012 – June 2013

Funding Source	Cost-share paid
Federal 319(h)	\$ 424,260
State VNRCF	\$ 1,411,692
State WQIF	\$ 98,184
TOTAL	\$1,934,136

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Summary of cost-share funds spent on implementation by TMDL watershed: July 2012 – June 2013

TMDL Implementation Project	# of BMPs	Cost-share Funding	\$ Match
Big Otter River Watershed	21	\$ 235,512	\$ 195,496
Carter Run, Great Run, Deep Run and Thumb Run	77	\$ 270,084	\$ 165,526
Christians Creek and South River Watersheds	5	\$ 22,534	\$ 6,699
Craig Run, Marsh Run and Browns Run	16	\$ 119,871	\$ 127,500
Cub Creek, Turnip Creek, Buffalo Creek and UT to Buffalo Creek	2	\$ 46,755	\$ 11,699
Falling River	11	\$ 207,076	\$ 87,956
Flat, Nibbs, Deep and West Creeks	12	\$ 177,349	\$ 57,853
Hawksbill Creek and Mill Creek	106	\$ 58,110	\$ 45,917
Hays and Moffatts Creeks	3	\$ 36,612	\$ 11,018
Slate River Watershed	11	\$ 46,635	\$ 19,672
Looney Creek	13	\$ 123,048	\$ 125,366
Lower Banister River Watershed	1	\$ 33,635	\$ 7,470
Lower Blackwater River, Maggodee and Gills Creek	1	\$ 14,446	\$ 2,570
Mossy Creek, Naked Creek and Long Glade Run	2	\$ 6,897	\$ 5,191
North and South Mayo River and Smith River Watersheds	2	\$ 45,844	\$ 17,607
Pigg River and Old Womans Creek Watersheds	22	\$ 76,555	\$ 53,232
Robinson River, Little Dark Run	114	\$ 52,061	\$ 57,753
Smith Creek Watershed	33	\$ 5,824	\$ 6,099
Spring Creek, Briery Creek, Bush River, Little Sandy River and Saylers Creek	4	\$ 25,085	\$ 80,571
Upper Banister River Watershed	1	\$ 12,393	\$ 2,187
Upper Clinch River	1	\$ 8,908	\$ 1,572
Upper Hazel River	49	\$ 142,500	\$ 170,101
Upper York River Basin	16	\$ 114,395	\$ 36,289
Willis River Watershed	15	\$ 52,006	\$ 18,884
TOTAL	534	\$1,934,136	\$ 1,314,228

BMP Implementation and Pollution Reductions

Tracking both BMP implementation and water quality improvements in TMDL watersheds is critical in measuring success within the TMDL program. BMPs are effective and practical ways to prevent or reduce pollution from nonpoint sources to ensure water quality. While DCR has a highly effective BMP tracking program in place to account for BMPs installed using state or federal cost share funds, tracking BMPs installed voluntarily (without government assistance) has proven challenging. DCR currently is developing a mechanism by which voluntary practices can be accounted for; however, BMP implementation and associated pollutant reductions reported to date are largely practices installed with government cost share funds. The table below provides a summary of BMPs installed in targeted TMDL project areas in FY12, shows associated pollutant reductions by BMP funding source, and breaks down BMP implementation and pollution reductions by TMDL watershed. An additional break down of BMP implementation by project area can be found in Chapter 2 for specific TMDL Implementation projects.

From January 1, 2012 thru June 30, 2013 the 29 implementation projects supported by federal EPA §319(h) funding and/or state funding implemented 534 agricultural and residential BMPs. This included 325 BMPs funded with 319(h) and 209 BMPs funded through state VNRCF or WQIF in TMDL areas. This implementation resulted in over 215,354 feet of stream exclusion, and the reduction of 1.27E+16 colony

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forming units (CFU) of fecal coliform bacteria, 48,910 pounds of nitrogen, 7,969 pounds of phosphorous, and 7,905 tons of sediment.

Summary of BMP Implementation for TMDL Projects from 7/1/12-6/30/13

Practice	Practice Description	Units	BMP Extent	# of BMP
FR-1	Reforestation of crop and pastureland	Acres	30	1
FR-3	Woodland buffer filter	Acres	2	2
LE-1T	Livestock exclusion with riparian buffers for TMDL implementation	Linear feet	172,053	51
LE-2T	Livestock exclusion with reduced setback for TMDL implementation	Linear feet	17,313	5
RB-1	Septic tank pumpout	System	307	307
RB-2	Connection to public sewer	System	1	1
RB-3	Septic system repair	System	79	79
RB-4	Septic system replacement	System	46	46
RB-4P	Septic system installation/replacement with pump	System	10	10
RB-5	Alternative waste treatment system	System	6	6
SL-1	Permanent vegetative cover on cropland	Acres	18	3
SL-10T	Pasture Management	Acres	387	3
SL-6AT	Small Acreage Grazing System (TMDL)	Acres	200	1
SL-6T	Stream exclusion with grazing land management for TMDL implementation	Linear feet	21,916	10
SL-7T	Support for extension of CREP watering systems for TMDL implementation	Acres	87	3
WP-2T	Stream protection for TMDL implementation	Linear feet	18,225	4
WP-4B	Loafing lot management system	System	1	1
			TOTAL	534

Summary of Pollutants Reduced from 7/1/2012 - 6/30/2013 through TMDL Implementation

Data	Federal 319(h)	State VNRCF	State WQIF	Grand
Number of BMPS Installed	325	76	133	534
Total Pounds Nitrogen	10787	37020	1104	48910
Total Pounds Phosphorus	1195	6775	0	7969
Total Tons Sediment Reduced	1423	6482	0	7905
Total of Bacteria Reduced	1.03E+15	1.16E+16	1.83E+12	1.27E+16

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Summary of BMPs Installed and Pollution Reductions by TMDL Watershed from July 2012 - June 2013

TMDL Implementation Project	# of BMPs	Pounds Nitrogen	Pounds Phosphorous	Pounds Sediment	Bacterial (CFU)
Big Otter River Watershed	21	3,480	637	24	1.022E+15
Carter Run, Great Run, Deep Run and Thumb Run	77	13,794	1,927	82	1.541E+15
Christians Creek and South River Watersheds	5	1,048	208	5	3.963E+14
Craig Run, Marsh Run and Browns Run	16	4,893	706	18	9.404E+14
Cub Creek, Turnip Creek, Buffalo Creek and UT to Buffalo Creek	2	405	60	2	3.806E+14
Falling River	11	1,925	330	12	8.678E+14
Flat, Nibbs, Deep and West Creeks	12	5,752	1,580	13	2.022E+15
Hawksbill Creek and Mill Creek	106	1,160	79	106	1.190E+14
Hays and Moffatts Creeks	3	1,295	252	4	2.674E+14
James River (Slate River) Watershed	11	1,436	173	11	7.667E+13
Looney Creek	13	5,085	769	14	4.866E+14
Lower Banister River Watershed	1	1,842	416	1	7.353E+13
Lower Blackwater River, Maggodee and Gills Creek	1	101	20	1	2.018E+14
Mossy Creek, Naked Creek and Long Glade Run	2	343	68	2	3.460E+13
North and South Mayo River and Smith River Watersheds	2	855	157	2	2.336E+14
Pigg River and Old Womans Creek Watersheds	22	792	69	22	9.147E+13
Robinson River, Little Dark Run	114	665	-	114	1.117E+12
Smith Creek Watershed	33	174	-	33	2.936E+11
Spring Creek, Briery Creek, Bush River, Little Sandy River and Saylers Creek	4	418	82	4	1.034E+15
Upper Banister River Watershed	1	72	14	1	8.823E+13
Upper Clinch River	1	444	82	1	5.198E+13
Upper Hazel River	49	1,656	204	51	2.416E+15
Upper York River Basin	16	586	50	16	2.208E+14
Willis River Watershed	15	693	85	15	8.852E+13
TOTAL	534	48,910	7,969	554	1.266E+16

Note: Although Virginia provided TMDL Implementation funding for 29 project areas in 2013, only 24 projects reported BMPs installed.

2013 Progress Report: Healthy Waters Strategy

The Commonwealth of Virginia defines healthy watersheds as those that maintain high ecological integrity when viewed in a holistic assessment approach that addresses in-stream habitat, stormwater inputs, invasive species and natural flows. The Virginia Healthy Waters Initiative (HWI) has continued to be administered by DCR with significant support from the Virginia Commonwealth University. DCR, through a direct partnership with the Virginia Chapter of The Nature Conservancy and negotiations with

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DEQ, moved the Virginia HWI into the DCR Division of Natural Heritage because the program is specifically intended to identify and protect the natural communities in the Commonwealth, as identified in §§ 10.1-209 through 217 of the *Code of Virginia*. The Interactive Stream Assessment Resource (INSTAR) with the Healthy Waters Program is an inter-agency partnership led by DCR and VCU to identify and maintain watersheds with high ecological integrity.

A key component of the HWI is the assessment of resources following the INSTAR, a multi-metric assessment protocol. INSTAR has received national recognition and is well established as a scientific basis for assessing stream ecological integrity and is the basis of data used in the HWI. INSTAR, housed at VCU, is a multi-metric, biological and physical assessment of aquatic resources where field collected data is analyzed and compared against the data density to create a modeled reference condition (Virtual Stream Score) by which all other data is compared. It includes an integrated, multivariate assessment methodology including, fish and macroinvertebrate indices of biotic integrity (IBI), modeled reference conditions, a probabilistic monitoring approach for site selection, riparian analysis, and geomorphic and habitat condition assessments. The results of such an analysis categorize such data into Poor, Restorative, and Healthy. The INSTAR model indicates streams that score above 70 percent comparable are considered healthy and streams that score above 80 percent comparable are considered exceptions. Streams in the 50-70 percent comparable are good restoration candidates.

The Virginia HWI Program has continued to represent the Commonwealth in the Chesapeake Bay Program Goal Implementation Team Four (GIT4) Healthy Watersheds. This working group has brought together the various state Healthy Waters programs and developed communication materials illustrating the location of identified health resources and to develop strategies to advance resource protection in the Chesapeake Bay. In addition, the GIT4 hosted a workshop to discuss the protection of resources as a measurable action under the Chesapeake Bay TMDL.

The Virginia HWI Program is actively partnering with EPA, the Albemarle-Pamlico National Estuary Program, and the North Carolina Department of Natural Resources to identify areas for conservation in the Chowan basin. While outside the Chesapeake Bay drainage, this jurisdictionally shared watershed is a pilot site to develop a template for protecting valuable aquatic resources following the criteria for watershed restoration under the Clean Water Act. The Virginia HWI Program sought support from the EPA to advance protection of the Commonwealth of Virginia's watersheds by conducting a data mining effort to generate a less intensive analysis of water resources. Currently, the HWI produces a modeled analysis, based upon probabilistically collected field data, and ranks areas with high number of native species, and broad biodiversity; high native predators (fish and insects); presence of migratory fish species; low incidences of disease or parasites and intact riparian areas as being ecologically healthy. Virginia lacks statewide coverage of identified ecologically healthy resources, impacting the applicability of the program to other programmatic areas in the various state agencies. The support requested from the EPA was to provide the necessary data to create a modified Indices of Biotic Integrity, statewide. Unfortunately, this effort was not supported with EPA resources and the program continues to seek the resources to conduct this analysis.

As part of the efforts to demonstrate the application of the HWI Program and INSTAR data, the Virginia HWI Program partnered with the Chesapeake Bay National Estuarine Research Reserve in Virginia (CBNRRVA), the Virginia Institute for Marine Science and the Department of Game and Inland Fisheries to deliver a training in the Virginia Ecologically Valuable Areas (VEVA) database and application of these data. This day-long workshop was held at the CBNRRVA facility in Gloucester, Virginia and attended by over 50 participants representing local and regional government, non-governmental organizations and other potential users of the VEVA database.

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Specific goals and actions have been identified internally to advance the continued development of the program to meet the objectives of maintaining those systems that have high ecological integrity. To maximize the growth, development and implementation of the HWI, strategies are needed to consolidate HWI-related activities in the Commonwealth under the oversight of a working group that represents key constituents; and create a single, but appropriately flexible, set of criteria for the identification and protection of ‘healthy’ aquatic systems and associated resources. This effort has been advanced through the placement of the program in the Division of Natural Heritage but requires the following actions for continued implementation:

- Maintain a geospatial database of healthy and exceptional water and watersheds-- and associated resources--for the entire Commonwealth. Expand and update the database through a combination of data mining and data development activities. Use these and other geospatial data (e.g. development threat assessment) to create and distribute decision support tools (e.g. maps, analyses) to a wide range of user-groups.
- Develop, identify, and promote tactics, policies, regulations, and activities that can provide useful and tangible credit to landowners and local governments that practice healthy stream and riparian conservation and protection measures. Craft appropriate messaging and implement dissemination.
- Coordinate Virginia HWI activities with those of related programs at Chesapeake Bay (e.g. GIT 4), regional (e.g. APNEP), and national (e.g. EPA Healthy Watersheds) levels.
- Secure funding and other forms of support for the first three actions.

The Virginia HWI Program continues to work closely with DEQ, Section 303d and anti-degradation programs, and other programs associated with water quality standards, water withdrawal and minimum flows. Meetings with the Probabilistic Monitoring (Prob-Mon) staff to discuss the integration of INSTAR data with the Prob-Mon assessment process has resulted in the DEQ staff coordinating with the EPA Monitoring programs in Corvallis, Oregon. The EPA confirmed the HWI data and assessment process (INSTAR) was more than adequate to supplement missing DEQ Prob-Mon data. Coordination between DCR and DEQ has been successful; however means to improve that coordination are continually being explored.

Glossary of Acronyms

APNEP – Albemarle Pamlico National Estuary Program
BMP – Best Management Practice
CBNRRVA - Chesapeake Bay National Estuarine Research Reserve in VA
CD – Consent Decree
CREP – Conservation Reserve Enhancement Program
CTO – Certificate to Operate
DCR – Department of Conservation and Recreation
DEQ – Department of Environmental Quality
DMME – Department of Mines, Minerals and Energy
HWI – Healthy Waters Initiative
IBI – Index of Biotic Integrity
INSTAR – Interactive Stream Assessment Resource
GIT4 - Chesapeake Bay Program Goal Implementation Team Four
NPS – Nonpoint Source
NRCF – Natural Resources Commitment Fund
SR – Southern Rivers
SWCD – Soil and Water Conservation District
TMDL – Total Maximum Daily Load
VDH – Virginia Department of Health
VDOT – Virginia Department of Transportation
VENIS - Virginia Environmental Information System
VEVA – Virginia Ecologically Valuable Areas
VPF – Virginia Poultry Federation
VSMP – Virginia Stormwater Management Program
WIP – Watershed Implementation Plan
WQIF – Water Quality Improvement Fund